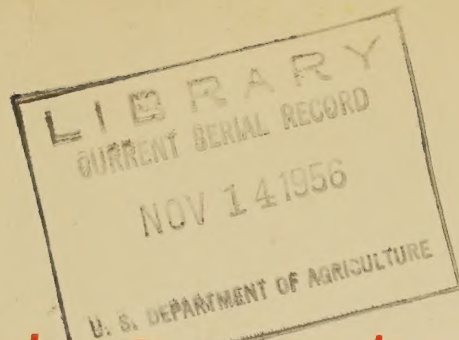


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Report of the Proceedings of the

Interregional Livestock Production and Marketing Conference

**THEME: Consumer Preferences
and How to Meet Them**

**June 13-16, 1956
at Cornell University, Ithaca, New York**

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INTERREGIONAL LIVESTOCK PRODUCTION AND MARKETING CONFERENCE

Cornell University, Ithaca, New York
June 13 - 16, 1956

Theme: Consumer Preferences and How to Meet Them

Wednesday, June 13

10:00-12:30 p.m. Registration - One World Room, Anabel Taylor Hall

Chairman - M. D. Lacy, N. Y.

1:00 p.m. Welcome - M. C. Bond, Director of Extension, N. Y.

1:15 p.m. What Today's Consumer Demands for Her Meat Dollar -
Seth Shaw, Vice President, Safeway Stores, Inc.

What Are the Implications to Extension Workers
and Extension Programs? - Jack Johnson, Virginia

2:30 p.m. Coffee Break*

3:00 p.m. The Problem and Probable Trends in Adjusting Production
to Changing Food Habits - Harold Breimyer, U.S.D.A.

What is Extension's Role in Adjusting to These
Changes? - Amos Meyer, Maryland

4:00 p.m. Tour of Campus

- - - - -

6:30 p.m. Dinner Program - Willard Straight Hall
Toastmaster - K. L. Turk, Head, Dept. of Animal
Husbandry, N. Y.

Population Growth and Food Supply -
Herrell De Graff, Babcock Prof. of Nutrition, N. Y.

* Courtesy of Eastern Railroads

Thursday, June 14

Chairman - Wendell Earle, N. Y.

8:30 a.m. Results of Consumer Studies of Meat Purchases -
V. James Rhodes, Dept. of Agricultural Economics, Mo.

9:15 a.m. What's the Newest in Meat Merchandising -
W. C. Haase, Swift & Co., Chicago, Ill.

10:00 a.m. Coffee Break*

10:30 a.m. Promotion of Meat Products by Sheep, Beef and Swine
Councils - Ralph H. Grimshaw, Ohio

11:15 a.m. TV - Its Place and Use in Our Extension Program -
Carlton Wright, N. Y.

Chairman - Thomas King, Penn.

1:30 p.m.

Tour

Beef Barn:

Grading of slaughter steers -

C. R. Martin, Producers Coop. Commission Assoc.
and Empire Livestock Marketing Coop.,
N. Y.

Charles E. Murphey, U.S.D.A.

Howard White, Arbogast & Bastian Packing Co., Penn.

Mt. Pleasant Farms:

Utilization of roughage through steer feeding
programs - J. I. Miller, N. Y.

Improved pastures - W. L. Griffeth, N. Y.

Swine Barn:

Use of the lean-meter and probing method in
selecting breeding stock - E. A. Pierce, N. Y.

Sheep Barn:

Making grass silage - W. K. Kennedy, N. Y.

Babcock Angus Farm:

My performance testing program - Monroe Babcock, N.Y.

Chairman - F. James Williams, Jr.

Dept. of Agriculture & Markets, N. Y.

6:30 p.m.

Steak Fry** - Taughannock State Park -
George Wellington, in charge, N. Y.

** Courtesy of N. Y. Beef Association and Empire Livestock Marketing Coop.

Friday, June 15

Chairman - Paul Newell, Miss.

8:30 a.m. Problems Encountered in the Development of a
Northeastern Livestock Market - Raymond Hemming, General
Manager, Empire Livestock Marketing Coop., N.Y.
Discussion leader - Robert Rector, Empire Livestock
Marketing Coop., N.Y.

9:30 a.m. Coffee Break*

10:00 a.m. How We Are Approaching the Marketing Problem in
Our State (Symposium)

Donald J. Balch - Vt.
Ellis A. Pierce - N. Y.
J. K. Butler - N. C.
J. S. Buchanan - N. C.
Guy R. Cassell - N. C.

Developing a More Effective Extension Marketing
Program - Dwight Younkin, Penn.

Chairman - Jack Kelly, N. C.

1:00 p.m. Performance Testing - Charles E. Bell, Jr., U.S.D.A.

2:00 p.m. Performance Testing and Its Role in Improving
Livestock Production

Beef Cattle - Charles Kincaid, U.S.D.A.
- John C. Goater, Jr., Maine
- Thomas B. King, Penn.

Swine - W. H. Bruner, Ohio
- A. L. DuRant, S. C.

Sheep - Ralph Grimshaw, Ohio
- John Robinson, Tenn.

3:30 p.m. Coffee Break*

4:00 p.m. Using Performance Testing Information in Our
Extension Programs - Don Gaylord, Conn.

Saturday, June 16

Chairman - Byron Colby, Mass.

8:30 a.m. Stilbestrol and Hormone Feeding to Cattle and
Other Livestock - Wise Burroughs, Dept. of Animal
Husbandry, Iowa

Using Recent Developments in Animal Nutrition
in Our Extension Program - J. E. Foster, Md.

9:30 a.m. What is the Relationship Between Show Ring Standards
and Efficient Production of the Kind of Animals
the Market Wants?

John Robinson, Moderator, Tenn.
Frank Buehler, P & C Food Stores, N. Y.
John Miller, N. Y.
Charles E. Murphey, U.S.D.A.
Harold A. Willman, N. Y.

10:30 a.m. Coffee Break*

11:00 a.m. Livestock Pest Control Under the Miller Bill -
A. W. Lindquist, U.S.D.A.

11:45 a.m. Making Effective Use of This Conference When You
Return Home - Stanley Brownell, N. Y.

WELCOME TO CORNELL

On behalf of Cornell University I extend you a very cordial welcome to the campus on the occasion of this, the 1956 Interregional Livestock Production and Marketing Conference. While here, I hope you will have an opportunity to see the campus and also some of the surrounding spots of interests including the glens and gorges. Have a good time as well as a stimulating experience.

Your Program Committee has given careful thought to the arrangements for this professional improvement conference. Most of the topics have been arranged from the point of view of the end product, i.e., production for the consumer. Participating in the conference, as speakers and panel members, are persons interested in the meat and livestock business from many points of view. It is important for persons engaged in Extension work to understand these varying points of view and to find ways in which we can gain a better understanding between all segments of the industry and the people who ultimately consume the products of livestock farming.

We appreciate the fine cooperation and the willing participation of the persons who are speakers and all of you who, from the several States and the United States Department of Agriculture, will help to make this a most stimulating exchange of facts and ideas. Members of the Cornell staff have gained appreciably from previous Interregional Livestock and Marketing Conferences held up and down the Atlantic seaboard and we now take pleasure in serving as hosts for this conference.

You are always welcome, and if any of our staff can be of any help to any individual while you are here, please feel free to call upon us. We trust that each person here will gain some information that will be useful to him as he returns to carry on his own duties.

Maurice C. Bond, Director, New York Agricultural Extension Service,
at the Interregional Livestock Production and Marketing Conference,
June 13 to 16, 1956, Ithaca, New York.

WHAT TODAY'S CONSUMER DEMANDS FOR HER MEAT DOLLAR 1/

As a preface to my later remarks I want to point out that "consumer preference" is an elusive thing. In America we have 160 million people. They are all individuals. Each has his own reasons for behaving as he does. No two are alike. All to some extent are victims of habit. Our tastes are cultivated, therefore, we like the flavor for which we have cultivated a taste. Slight variations from this flavor are often considered objectionable. We can all recall our reaction when we first tasted pasturized milk. Consumer tastes change but my point is there is no average consumer. It's difficult to generalize about consumers.

My subject today is, "What does the consumer demand for her meat dollar." This also is elusive because the consumer demands much more for her meat dollar, than meat. In the first place, why does Mrs. Consumer shop at a particular food store? Why does she pass one grocery store to go to another? I'd like to read you part of a letter recently received by our Washington, D. C. Division from a consumer giving her answer to this question:

"I am fortunate in the fact, that the area that I live in, is serviced by five large grocery stores: the Wheaton..., the Wheaton..., the Wheaton..., the Wheaton..., and the Kensington Safeway. With all these stores to choose from, the fact that the people in Kensington give you that little extra in friendliness and courtesy, as well as top quality produce for an economical price, makes it the store that I enjoy shopping in the most.

"The manager sees to it that there are always sufficient checkers to prevent waiting in long lines. As a busy housewife and mother, I appreciate knowing that when I shop there I won't be spending a lot of my time waiting unnecessarily. As for the checkers, they always have something pleasant to say and give a person a feeling of genuine friendliness and good will for the customer as well as for each other. I likewise appreciate the way they pack my groceries so that things are not crushed and the weight of the bags evenly distributed."

This consumer demands friendliness, courtesy and service. These things are appreciated, I am sure by all consumers, but my point is that she emphasized service more than quality of our products.

We, and others, have conducted a great many surveys to determine where and why consumers shop for food in particular stores. Many shop at certain stores because they like the meats, or the produce, the wide

1/ Presented by Seth T. Shaw, Vice President, Safeway Stores, Inc., Washington, D. C., at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

selection of grocery items, the bakery goods, or dairy products. Some consumers give their reasons for shopping where they do, as "the store is air conditioned," "It is beautifully lighted and decorated," "I like the soft background music," "The store is so clean." These are but a sample of the kind of answers we obtain.

This raises the question, "To what extent is the consumer a captive in the store of her choice?" In other words, does the consumer choose her store and accept the quality of meat and other products that that particular retailer wishes to offer her? Stated still another way, "Does the retailer dictate what the consumer wants, or does the consumer in reality make the choice?"

Each individual retailer has to decide the quality of meat products he is going to handle. The prudent retailer will certainly decide to handle the quality range which he thinks will best satisfy most of his customers. In other words, he wants to sell the greatest possible volume of meat. He can only do it by satisfying his customers. In some areas certain retailers have come to the conclusion that the quality range of one grade is not sufficient to satisfy all of their customers. They therefore may decide to stock two, or more qualities, display the products separately, and price them separately.

We have had some experience stocking two qualities of beef. In the Washington, D. C. area we recently handled two grades of beef - Choice and Commercial, over a period of several months. In December, January and February there was a wide price differential between those two grades. It was as much as \$15 per cwt. on the carcass basis. It resulted in retail price differentials of as much as 30¢ a pound for loin steaks; 15¢ a pound for rib roasts; 4¢ to 6¢ a pound for chuck roasts and boiling beef. When the price differentials were of this magnitude many of our customers preferred the lower grade. In March, April and May the price differential between Choice and Commercial narrowed to about \$6 per cwt. of carcass. This resulted in lesser price difference at retail with the result that the demand for "Commercial" almost disappeared. Our customers returned to the Choice grade. Over the entire period our beef sales, handling two grades, showed no increase over the same period one year earlier. It cost us more to handle two grades, primarily because of the additional case space required to display both grades. There were other important cost factors, especially in lower volume stores where the traffic was not sufficient to keep all of the cuts from both displays moving. This results in cuts losing bloom and otherwise going out of condition.

Years ago meats were sold primarily in butcher shops. The butcher was a man who knew meats. He depended largely on a local supply. At times he had excellent beef. At other times it was not so good. He told the customer what to expect of the meat he sold them. The customers respected his knowledge and depended on his judgment. When meats were brought into the food store they were given much wider distribution. The housewife continued to depend on the meat cutter to select her meat. The meat cutter was still the housewife's best friend. Mass distribution techniques have made it impossible to maintain this same relationship,

even though we have attempted to preserve as much as is consistent with today's merchandising practices. I'm sure you can see that as we have moved in the direction of self-service we have had to have the kind of meat that is sure to please. If the quality is uniform and consistent, the housewife can do as good a job in selecting her meat cuts as the expert. She will always get good meat if nothing but good meat is in the case.

The development of better refrigeration and refrigeration facilities, plus the development of self-service meat sections, has applied the same techniques of mass distribution to meats as was true earlier for other food commodities. One lesson that all retailers must eventually learn is that their meats must be of consistent quality. The same today, tomorrow, next week, next year. The retailer who vacillates between high and lower quality will never develop much meat business. The retailer who handles Commercial grade beef all the time may satisfy his customers. They become accustomed to that quality and therefore register very few complaints.

It was back in the mid-'30's that Safeway inaugurated its meat quality program. As we improved our quality we increased our sales. Some argue now that even higher quality meat was so cheap in the middle '30's that customers were not so allergic to the extra amount of fat. It is true that mid-'30's prices were much lower than they are today in terms of dollars and cents, but in reality prices are much cheaper now, than in the mid-'30's in terms of disposable income. It was our interest in being consistent in the quality of meat that led us in the late '30's to adopt the policy of purchasing only government graded meats. We felt that the consumer had no way of comparing values unless we advertised quality, as well as price. We also believed that the yard stick of quality should be applied by a disinterested third party and we would do better to advertise quality as related to such a yardstick, than to manufacture our own superlatives to describe the quality we were handling. It was in the middle '30's when we established our first meat warehouse for aging beef. It was the response of consumers, as measured by our sales, which led us to establish many additional facilities for this purpose.

I can't speak for other retailers, but we keep close watch over our sales of each commodity as related to \$1,000 of store sales. If our beef sales, for example, in terms of \$1,000 of store sales, decrease we immediately look for the reason. If the production of beef is down ten percent, but our sales of beef per \$1,000 of store sales is down only seven percent, we are sure that we are not losing beef customers. On the other hand, if beef production is up five percent and our sales are down three percent, we can only conclude that we are losing beef sales.

There has been considerable comment recently and some research which may lead us to believe that the consumer wants leaner beef - that USDA Choice is too wasteful to suit today's consumer. We are interested in such research of course, but we are not impressed, so long as our sales, in pounds of beef, per \$1,000 of store sales exceeds the percentage by which

production of beef has been increased. For the first 16 weeks of 1956 our beef sales on a tonnage basis were up 15.53 percent over the same period in 1955. Beef production during the same period was up 12.8 percent. Our total store sales were almost exactly the same as a year ago, therefore, we can only conclude that our beef is satisfying our customers.

Before saying more about consumer demand for beef, let's take a look at the consist of our current beef supply. In 1955 we slaughtered about 26 $\frac{1}{2}$ million head of beef animals. 63 percent of the cattle slaughtered under Federal Inspection were steers and heifers - 49 percent steers, 14 percent heifers. This is the principal crop that beef producers have to sell. The future of the cattle industry therefore depends upon the market for these young cattle. In 1955, 35 percent of the cattle slaughtered under Federal Inspection were cows - both beef and dairy, and 2 percent were bulls and stags. Cows and bulls are largely by-products of the beef and dairy industries. Most of these animals are no longer useable or needed for breeding purposes. The dollar return from marketing cows and bulls is quite substantial, but the future of the industry is not associated with this part of the annual crop.

Now, let's take a closer look at the 63 percent - steers and heifers. The closest estimate I have been able to derive is that about 85 percent of these steers and heifers graded Good, Choice and Prime. The 85 percent will break down into grades approximately as follows:

5-6 percent Prime
50-55 percent Choice
25-30 percent Good

We might say then that this represents today's consumer preference pattern in fresh beef. You might ask me again "Does this represent the pattern of retail preference, or does it, in fact, reflect consumer preference?" I lean strictly to the view that it does reflect consumer preference. So long as consumers have a choice of quality and price within a market area they will find the quality and price which suits them best. The retailer is very responsive to changes in consumer demand as reflected by his sales. If we were sure we were losing sales to retailers handling beef with less finish we would be quick to change our ideas as to what the consumer wants. You may wonder if there would be sufficient supply in a lower grade if several retailers would decide to handle the lower quality. My answer is that production would very soon adjust to produce the kind of beef for which there were demand.

Since it is difficult to talk about carcass meats without reference to grades, I would like to discuss briefly the beef carcass grades as they are now constituted. It is true that the grades are arbitrary. In other words, there are thousands of variations in beef animals marketed. The quality scale descends from the perfect animal in prime condition to the poorest animal marketed. Grade lines have been drawn to establish categories of quality. These lines were so drawn as to provide for long fed cattle (6 months to a year); intermediate fed cattle (100 to 180 days); short fed cattle (less than 100 days), grass cattle, and aged cattle.

The beef grades as presently constituted and the kind of cattle which will qualify for each grade are described below:

1. U. S. Prime. Only steers and heifers of excellent breeding will qualify for the Prime grade. They must have excellent conformation, well covered with outside fat, an abundance of inside fat, and show evidence of abundant marbling within the lean muscle tissue. The quality of the lean will be very high and the fat will be excessive.
2. U. S. Choice. Only steers and heifers will qualify for this grade. The carcasses must have very good conformation, a reasonably good cover of outside fat, rather abundant inside fat and evidence of moderate to abundant marbling. The eating quality will be high. The fat will be somewhat excessive.

In the Prime and Choice grades, the fat shall be hard and waxy. The meat must be firm. The cut lean surfaces of the meat shall be bright in color and velvety in texture.

3. U. S. Good Grade. This grade is made up mostly of short-fed steers and heifers, even though young, smooth, blocky cows can qualify for it. These carcasses will have a fair cover and a reasonable amount of inside fat. The color of the lean may be two toned, but will be smooth and velvety where produced from young cattle. The meat will be less firm than permitted in the Choice grade. The quality in this grade will vary seasonally from "near-Choice" fed steers and heifers during January to May to fat "grass cattle" during September through November.
4. U. S. Standard Grade. Steers and heifers will predominate in this grade, but young cows will also qualify. The carcasses will not be well covered and will have less inside fat. The meat will be less firm than is permitted in the Good grade. At certain seasons of the year these cattle may have been on a short feed. At other seasons they will be strictly grass cattle.
5. U. S. Commercial Grade. This grade is made up of fat cows. They will usually be three years and older. They may, or may not, have had grain feeding. These cows will carry approximately the same degree of finish as steers and heifers in the Choice grade. The texture of the flesh will be coarse and grainy, but should show considerable evidence of marbling.
6. U. S. Utility. This is principally a cow grade. It will be made up mostly of fleshy cows. However, thin scalawag steers and heifers will also qualify for the Utility grade.

The Commercial and Utility cows will furnish much of the beef for frozen minute steaks, ground beef, pot pies, canned beef stew, etc., but the better cuts will be utilized by restaurants and retailers for cubed steaks, pot roasts, ground beef, etc.

7. U. S. Cutter and Canner. Cows that will not qualify for the Utility grade will be graded Cutter or Canner, depending on the amount of fleshing. These grades are used entirely for processing, as is true for part of the Utility grade.

What is this Thing Called Quality?

Quality in beef, in my opinion, is related principally to two factors - tenderness and flavor. We know that age of the animal influences tenderness. There is some evidence that tenderness is influenced by the degree of the fatness of the animal. Some of the work at the American Meat Institute Foundation at the University of Chicago would indicate that marbling confers tenderness to the meat. Degree of fatness certainly affects flavor. Lean meat with considerable marbling remains juicier and has more flavor than similar meat with less intra-muscular fat.

It is a well known fact that aging tenderizes meat. It appears from the research which has been done on this subject that the accelerating phase of the aging process is approximately between the fifth and thirteenth day after slaughter. It has been shown by USDA Research that beef becomes tougher during the first 72 hours after slaughter. It is thought that this toughening is somehow associated with rigor mortis. The aging process at 34° F. then goes something like this - toughening for the first 72 hours, then slowly tenderizing for the next 72 hours reaching the accelerating phase about the fifth day. After the thirteenth day it appears to level off, but continues to tenderize at a slower rate. We need more research on this subject, but the evidence to date would bear out what I have given you.

Can all Beef be Aged to the Same Degree?

No. The length of the aging period is related to the fatness and firmness of the carcass. In general, the fatter and firmer the carcass, the longer it can be aged with safety. Soft, watery beef cannot be aged. There are two reasons why this kind of beef cannot be aged, (1) a high moisture content, coupled with incomplete fat cover, is conducive to the growth of slimes and molds; and (2) the dehydration shrinkage from this kind of beef is terrific.

Aging affects both tenderness and flavor of the meat, but only the higher grades can be satisfactorily aged. The point I wish to make is that we lose some of the quality associated with the higher grades if we do not take advantage of its ability to take aging. It is true the customer wants lean meat, but she also wants the quality which is associated with the fatter beef.

This presents a challenge to the livestock industry to develop heavily fleshed cattle, which will finish with a lesser amount of this so-called excess fat. Much headway has been made along this line. Range men are using better bulls with the result that each year shows some improvement in the quality of feeder cattle going to market. It is the scalawag steer or heifer which becomes patchy and gobby with fat. You have probably noticed that the animals deficient in conformation tend to hide those deficiencies with fat deposits.

I want to commend the swine industry for their progress in producing a better meat-type hog. We, as retailers, are less conscious of the excess fat problem in hogs since we purchase only trimmed wholesale cuts. The packing industry is to be commended for their recent action in adopting

closer trimming standards for these cuts. It is our hope that they will take another forward step and defat beef carcasses at the packing plant. The most important advantage of defatting beef at the time of slaughter is that the fat is then in edible form, and as such, is far more valuable than when in the form of scrap as it is now when picked up at the retail store. Our company-wide realization from meat salvage is approximately 1.6¢ per pound. One entire division of our company receives nothing at all for their meat salvage, and 240 of our stores dispose of their salvage through garbage collectors with no return. This represents a tremendous waste, not only to us but to the entire livestock and meat industry. There are also other advantages of defatting, such as reducing transportation and handling costs at the various levels. Tests show that the additional defatting considered feasible at the slaughter plant would remove 28 to 30 pounds, or about 5 percent of the weight of the carcass. Our Washington, D. C. Division recently conducted a beef sale. We sold 79 cars of beef in one week. This beef originated principally in Chicago, Kansas City, Omaha and Denver. We, therefore, paid freight and handling charges on four carloads of fat which should have been removed when the cattle were dressed. This fat is currently worth 10¢ to 12¢ per pound at the packing plant.

We have a similar problem in lambs. There is no reason for leaving the lower fore or hind shanks, or the spleens, or the kidneys in lamb carcasses. The savings to the industry in better trimming beef and lamb carcasses would reflect benefits to everyone along the line from producer to consumer.

Now let's take a look at some of the more recent developments in retailing meats. To what extent did consumers demand self service meats. It has always interested me that surveys show so large a percentage of homemakers who don't like self-service meats. Yet, most of the same women who object to self-service shop at self service stores. I'm sure you remember the early days of self-service meats. As each meat section was converted to self-service we heard reports that sales had increased by phenomenal percentages. Those without self-service were losing customers. They had to follow suit to hold their sales. Customers didn't say "unless you put in self-service I'm going elsewhere to shop." They just went elsewhere without saying anything. It's the same with parking lots, air conditioning and the like.

I am sure you are all aware of the economic reasons which led up to self-service meats. About 70 percent of our meat volume is sold on Fridays and Saturdays. It was just impossible to handle the weekend traffic under meat-cutter service conditions. Self service has taken care of the traffic problem. The people no longer stand in line at the meat counter. With as much as 70 percent of the meat volume being sold on the weekend you can understand that we were either over-manned early in the week or under-manned on the weekend. Self service permits better work planning, so the early days of the week can be utilized in preparing for the weekend rush.

What has been the Impact on Self-Service Meats on Quality?

It has accentuated the demand for higher quality meats. In the first place soft, watery meat will not hold up well in self-service.

In the conventional service market the meat is cut immediately prior to sale or at the time of sale. It looks good under these conditions.

In self service the beef is cut some time prior to the sale. Since it is to be packaged in cellophane or film it is necessary to allow sufficient time for the color or bloom to develop after cutting and before wrapping. This requires several hours. The meat is then packaged ready for the display case. Commercial (the new Standard) grade beef will only hold its bloom about 24 hours. Much of it will not hold it that long. Grass or short fed beef with higher moisture content will lose more tissue fluids which affects the appearance of the packages.

Self service meats have also led to closer trimming Standards for retail cuts. When the cuts of meat are in the self-service case, and the customer selects the cut which suits her best, she fails to pick up a cut if it is poorly trimmed of excess bone and fat. Customers are becoming better judges of value because of this self service experience. As they shop in different stores they recognize when a retailer is not doing as good a job trimming as his competitor. Few customers, however, fully appreciate the significance of trim in terms of dollars and cents. The trim often has far greater economic significance than the grade of meat. That is, you may have more of a problem meeting the competition with the same grade of meat that is not well trimmed, than you will in meeting the competition on lower quality meat.

Frozen Meats.

Our frozen food sales have grown by leaps and bounds in the last few years. We are constantly adding new products to the meat line. A large number of meat items are sold from the frozen food cases. At the present time we carry about fifteen frozen meat items, which include beef, pork, turkey, and chicken pot pies; veal steakettes, ground beef patties, wafer steaks, buttered steaks, a full line of frozen poultry and frozen fish.

Recently some of the meat packers have come out with a full line of frozen red meat items. It is quite likely that frozen meats will make considerable headway in the future. A number of retailers have had considerable success with the frozen red meats. However, it is my view that these developments will be slow. In the frozen meat lines, with which I am acquainted, the cuts are mostly boneless and trimmed very closely of excess fat. The result is that the per-pound price of frozen meats are very high compared with similar cuts from the self service meat case. It will be necessary to narrow this differential before frozen meats will gain wide-spread acceptance. This will come in two ways. The better trimmed and boneless frozen cuts will force closer trimming of fresh cuts which will narrow the differential, and the cost of freezing and packaging of frozen cuts will have to be lowered.

The beef carcasses which are in greatest retail demand will range in size from 400 to 700 pounds. We like heifer carcasses in the 450 to 550 range. We like steer carcasses in the 500 to 700 pound range. The heifers in the lower range will have about the same maturity and consequently the same flavor as the steers in the heavier weight range. As heifers get heavier, they become wastier. The retailer likes carcasses of this size because his customers like cuts of about this size. Loin steaks from carcasses weighing over 700 pounds are just too large for most household users. When the homemaker wants a rib roast she wants at least two ribs. Two ribs from a 600 pound carcass will produce a roast of about 6 pounds. If she wishes a larger roast she would rather have three ribs from the lighter weight carcass. Two or three rib cuts from 800 or 900 pound carcasses are altogether too heavy for the average homemaker.

In lamb carcasses the greatest retail preference is for carcasses weighing 40 to 45 pounds. I remember when it was 35 to 40 pounds. Most retailers are now willing to take lambs up to 50 pounds. During January, February and March it is difficult to buy lamb carcasses under 50 pounds. Most of them will weigh 50 to 60 pounds. These carcasses are produced by the older feed-lot lambs. One of the reasons retailers have continued to raise their sights on the weight of lamb carcasses is that we are producing better mutton type lambs today than we did a number of years ago when the range sheep were mostly of Rambouillet breeding. The range sheep of today have somewhat better mutton characteristics and these are strictly mutton breeds for today's lamb crop. The 50 pound carcass of today is as desirable as the 40 pound carcass of a few years ago.

Another point I wish to make is that one quality such as U. S. Choice beef or lamb provides the customer with a wide range of cuts and prices, in other words both luxury and economy cuts. At the present time beef cuts are priced from 15¢ to \$1.00 per pound. Good meaty chuck roasts have been selling from 29¢ to 39¢ per pound. The customer who prefers steaks and roasts from Choice or Prime grade beef do not necessarily prefer chuck roasts from the same quality, so the luxury cuts have to sell at a premium. The economy cuts from highly finished beef have to sell in competition with lower grade beef, and rightly so, because braising and stewing cuts from the higher quality are no better for these uses.

Summary

What does today's consumer demand for her meat dollar?

1. She demands first of all a store in which she enjoys shopping.

A. Among the things she demands other than meat are the following.

- a. Good service.
- b. Friendly atmosphere.
- c. Cleanliness.
- d. Good quality, fresh produce.
- e. Good selection of grocery items.
- f. Parking lot with easy access.
- g. Air-conditioning in certain areas.

B. Among the things she demands of the meat section are:

- a. Attractive display of meat.
- b. Attractive packaging.
- c. Packaging must not hide bone or fat.
- d. All cuts must appear fresh and bright.
- e. When she cannot find the cut in the case, she wants willing service in providing precisely what she wants.
- f. She wants lean meat. She selects the leanest cut of the item she is selecting. (If she were only interested in lean, she would always select round steak or roast.)
- g. She wants good quality.
- h. She wants consistent quality. (She forgets the many good quality cuts whenever she is disappointed in the quality of one cut.)
- i. She wants competitive prices, quality and trim considered.
- j. She wants a good selection of size of cuts.
- k. She wants fresh, high quality ground beef and pork sausage.
- l. She wants a good selection of luncheon meats.
- m. She wants less fat on pork cuts.
- n. She wants good poultry (We handle only Government inspected and government graded poultry.)
- o. She wants whole fryers, cut-up fryers and packaged pieces - breasts, drumsticks, thighs, wings, giblets, etc.
- p. She wants a good selection of convenience items, TV dinners, pot pies, minute steaks, stuffed poultry and turkeys, etc.

What does this add up to in terms of livestock production?

It means that the meat type hog of choice slaughter weights will best meet the demand of today's consumer. It means that the packer and the retailer must do a good job in trimming and presenting the cuts to the consumer.

In beef, it means that the retailer must have consistent quality. It cannot vary week-to-week or even seasonally. The beef animals at the slaughter stage must be of uniform age, finish and quality. Aging of the beef makes it even more uniform. It is difficult to find sufficient uniformity in grades below "Choice" to fulfill this requirement, in the judgment of Safeway Stores. I'm willing to grant that we could have far greater uniformity in "Good" and the new "Standard" grades if there were evidence, that is purchasing performance, to show that consumers really preferred such beef.

PROBLEMS AND PROBABLE TRENDS IN ADJUSTING
LIVESTOCK PRODUCTION TO CHANGES IN FOOD HABITS 1/

I want to review how producers of livestock have adjusted in the past to the particular nature of the demand for their products, and how they may be expected to adjust further in the future.

My assigned title starts with "problems." Problem number one I shall refer to is that of communication. Consumers of meat, milk and eggs are seldom in direct touch with producers of livestock. Communication is through marketing agencies as the intermediary. One of the services expected of the marketing system is that it accurately transmit the schedule of consumer wants and tastes back to producers. The communication problem is not simply one of willingness. It involves also the need for identification. In meats, brand labels help in identification. Government grades are a more universal standard. Both are essentially means to better communication.

Problem two concerns limitations that unavoidably arise in the area of marketing and processing. Agencies in that area have requirements and interests that sometimes coincide with those of consumers, and sometimes do not.

Problem three is another limitation to fulfillment of consumer desires--that of limitations in production. Costs or natural handicaps in production for one kind or grade of product versus another may be so great as to prevent sizable output of the preferred variety.

Major trends partly in keeping with consumer wishes, include producing heavier carcasses; more feeding of beef cattle, especially to the choice grade; more grading and more processing of meat; and reduction of seasonal fluctuations in supply.

(Mr. Breimyer's complete talk, including charts, has been sent to State specialists.)

1/ Presented by Harold F. Breimyer, Agricultural Economist, Agricultural Marketing Service, U. S. Department of Agriculture, Washington 25, D. C., at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

THE PROBLEM AND PROBABLE TRENDS IN ADJUSTING
PRODUCTION TO CHANGING FOOD HABITS ^{1/}

What Is Extension's Role In Adjusting To These Changes

This is indeed an honor and a privilege. It is an honor to be invited to take part in this discussion as to how our objectives in Extension programs should be changed to meet the problems and probable trends in adjusting livestock production to changing food habits. It is a privilege to be able to share thoughts and ideas with you.

This meeting as meetings of the past is a stimulating experience. It signifies the spirit of cooperation...of working together. This is the road to State, national and world progress.

Improved help in the production and marketing of livestock and the merchandising of red meats is our keynote. Let us strive to further it through the cooperative efforts of meat processors, livestock marketing agencies, producers, and representatives from our research, teaching and Extension staffs of the Land Grant Universities.

I want to pay a sincere tribute to Harold Breimyer for his excellent presentation on "The Problem and Probable Trends in Adjusting Production to Changing Food Habits." Mr. Breimyer effectively presented the problem and probable trends and he left considerable food for thought which will challenge all of us and our respective Extension programs.

I am sure that you will agree with me in that agricultural problems cannot be solved by government programs alone. Agriculture needs programs (projects) directed towards certain commodities...the programs need to be set up on an individual State, area or county basis. Agriculture needs freedom, not regimentation and flexibility, not rigidity.

The problems pertaining to production and marketing of live animals and marketing of red meats not only affects farmers, but all of the economy and all of our people. They must be attacked on a broad front and in a cooperative way by all segments of the industry.

That is why I regard these problems as important to farmers...important to marketing agencies, important to meat processors, important to retail stores and important to Extension workers. You are, I repeat, a vital link in solving the problems encountered from the farm...point of production...to the retail store...where it is accepted or refused by the consumers.

The livestock industry appreciates your help over the years...and during the past year. I am sure they will appreciate your continued help and your assistance to encourage others to cooperate in solving agriculture's

^{1/} Presented by Amos R. Meyer, Extension Marketing Specialist, University of Maryland, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

marketing as well as production problems. Marketing constitutes the great long-term need of our agriculture. A part of our current problem may be credited to over-emphasis of production. We neglected to consider the problems that came about because of emphasis on production and instead continued stressing the need for more and more food and fiber.

In other words, production research has done the job so well that our current problem is not how to produce enough but how to market our abundance. Perhaps a still greater or more important problem is to produce what the consumers want.

We all know what frozen concentrates have done for the growers of citrus fruits...and for the diets of our people. Imagine what a great boon it will be to the livestock producers...and again to our people...when we have the size of meat cuts they want with just the right amount of fat covering.

All of the progress in agriculture came about because of "team work." The problem of adjusting production to changing food habits will have to be mastered in a similar fashion.

A few of our many problems in livestock that need immediate attention may be listed as follows:

Swine

1. Production of too many lard-type hogs.
2. Lack of sufficient red meat area in pork cuts.
3. Inability of maintaining uniformity in pork carcasses.
4. Peak marketing of slaughter hogs twice each year.

Beef Cattle

1. Production of slaughter steers and heifers that are too large for packer and retailer (our consumers want small cuts of beef).
2. Peaks in marketing...too many slaughter steers and heifers are on the market at approximately the same time during certain periods.

Sheep

1. Production of lambs that are too fat and too large.

These problems and others relating to production and marketing of livestock and marketing of red meats can be, as previously mentioned, solved by cooperative "team work" of all the phases of the livestock industry, including research and Extension. Our respective programs must be of such scope and flexibility that changes can be made to include new work at any and all times.

We must analyze the importance of the problem and then determine how it shall be included in our programs.

For example: The problem of peak production in hogs may be leveled off by multiple farrowing. If this is the possibility, we in Extension must give the pros and cons of multiple farrowing to the farmers in our State. Then let the farmers make the decision. If we are convinced that multiple farrowing is the answer, then we should encourage farmers to follow this practice.

RESULTS OF CONSUMER STUDIES OF MEAT PURCHASES ⁷ 1/

I would like to preface my remarks with this question: "How far can producers or merchandisers go in telling Mr. and Mrs. Consumer what they can have to eat?" I believe that this is a fundamental question faced by every group of food producers and every middleman in the food business. It's not a question that can be answered today at this conference or today in the President's office of a meat merchandiser. Rather it is a question that will continue to appear under a thousand different guises day after day.

The phrasing of the question, "How far can we go in telling Mr. and Mrs. America what they can eat?", implies that the answer is one of degree. That is, there is no denying that consumers can be, have been, and are being influenced. Ezra Cornell, one of the founders of this great University, would be completely bewildered in today's supermarket. Americans are eating foods in hundreds of new forms and packaged in as many new ways. These new products and new packages have ordinarily been originated by the genius of American business and not by consumers. Merchandisers have persuaded consumers that these new products were just the thing they wanted. If you please, consumers have been "told" to use liquid soap for dishes, to be abnormally concerned about normal body odors, to buy meats pre-packaged self-service, to eat oleo instead of butter, to buy little broilers pre-packaged instead of N. Y.-dressed farm chickens, etc. Thus, consumers, to some extent, can be told what they can eat and in what form they can buy it. But anyone who is familiar with the history of American business can point to failures of dozens of other attempts to influence the consumer. We all can recall the attempt of Henry Ford to "give them any color as long as it's black." A few years ago a retail chain is reported to have decided to eliminate a branded bacon product of one of the major packers. One of the chain's meat consultants asked at that time, "Is our Company big enough to tell American consumers that they can't eat this brand of bacon?" Today, that Company is again handling that brand of bacon. Apparently, it was not big enough.

What I'm trying to do is to appraise the significance of consumer preferences. Some people are completely sold on discovering "what consumers want." Other people are a bit more critical and inclined to say that consumers take what is offered them and that advertising and selling can do anything, so that study of consumer preferences is an economic waste of resources. While either point of view may prove correct for certain products, the correct answer usually lies somewhere in the middle. A product which satisfies consumers' preferences doesn't automatically sell unless it has some selling behind it. However, a product which has only mediocre consumer acceptability may sell very poorly, although it has tremendous selling efforts pushing it.

1/ Contribution from the Missouri Agricultural Experiment Station, Journal Series No. 1640. Approved by Director. Presented by V. James Rhodes, Department of Agricultural Economics, University of Missouri, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

This conference indicates that you folks here in the East are concerned with the usefulness of discovering consumer preferences for meats. We are concerned with modifying our meats and our methods of merchandising them so as to satisfy better the American consumer and so as to improve the prices at which our meat production is sold.

It is one thing to be concerned about the discovery of consumer preferences. It is quite another thing to discover them. Our experience with consumer preference research at Missouri over the past 5 years has been that it is discouragingly difficult. The difficulty is not that results cannot be obtained. Consumers are rather easy to work with. A little imagination on the part of researchers has developed several modifications and combinations of survey and experimental techniques that are being used in consumer research. The difficulty lies in appraising the validity and relevance of the results which are obtained. Consumers are people--millions of people. In recent years, our psychologists and educators have emphasized that while people have many things in common, there are many important individual differences. Whenever, I hear someone discussing what "the consumer" wants, I suspect that "the consumer" is the person speaking. Many times we can generalize about a majority of consumers but we must beware of too sweeping generalizations. For example, the "typical American consumer" eats almost no lamb. This is a "fact" about consumption habits which could lead an unwary and uninformed observer into assuming that there is no market in America for lamb. On the contrary, there is a lamb market because a minority of consumers are not "typical" and eat lots of lamb. There are other difficulties in the interpretation of preferences which I will note later.

Having warned you of the dangers of treating generalizations as Gospel, I will try to generalize as much as I dare from the consumer preference results concerning beef and pork. I will be using the published results of various researchers and our own published and unpublished results. It seems most appropriate in speaking to a group of this kind to take care that the trees do not obscure the view of the forest. Details are available in various publications and I will be happy to answer your questions if there is an opportunity.

Beef has been the object of more preference research than any other meat. Consumer likes and dislikes, consumption habits, etc. have been determined in several Western localities. Arizona interviewers asked 500 Phoenix consumers the factors they considered most important in selecting beef. A minimum amount of fat was mentioned most frequently. Color of lean was the next most frequently mentioned item.

About 51 percent of these consumers could not name a single federal grade. In Phoenix, 52 percent preferred their steaks cooked well-done and only 10 percent rare. These consumers were shown colored photographs illustrating high, moderate, and small degrees of marbling in beef. The cut with the least marbling was preferred by 59 percent while 23 percent selected the cut with the most marbling.

We obtained much the same results in Metropolitan St. Louis in 1954. A majority of the respondents said that they were sometimes disappointed

in the eating qualities of the steaks and roasts they consumed. The most frequent difficulty was lack of tenderness.

The more important results it seems to me were the discovery of these two things: (1) the high stress placed by most consumers upon leanness and tenderness, and (2) the general tendency to cook steaks and roasts well done. These results warn us that the high prestige accorded rare Prime steaks by some of us, personally, should not be projected to the mass market of the West and Middle-West. I know of no work here in the East which would guide us concerning possible variations from the Western pattern.

The obtaining of consumers' preferences--i.e., the obtaining of choices among two or more alternatives--has ordinarily been by visual inspection of two or more grades of a certain cut. These grades have been in displays or for sale in self-service meat counters. A few researchers have used pictures, but we have always used the actual product in any major study. The T-bone has been the cut most often used for preference determination, although the rib steak, the chuck roast, and perhaps other cuts have also been used. We have restricted most of our work to a few cuts in order to concentrate our research attack. We have ordinarily used the short loin for the following reason. The market records greater price differentials among grades of this cut than any other. Presumably, consumer preferences vary more for this cut than for any other. Since most results concern one cut, one must be cautious about generalizing preferences for it to the whole carcass.

In early 1954 we displayed the top four grades of loin steaks in 15 grocery stores in Metropolitan St. Louis. These stores were selected by means of a weighted, stratified, probability sample. The 4 steaks were pre-packaged and stored in specially constructed coolers when not in use. The steaks were carefully cut according to standardized procedures by our own Meats Laboratory from carcasses selected as the middle of the grade and weighing 450 to 500 pounds. For one set of 4 steaks, outside fat was trimmed to a maximum of 1/2 inch. Various other controls in preparing and displaying the steaks were taken to avoid possible sources of bias. Some 506 shoppers were interviewed at the displays. The Commercial steak was selected by 15.4 percent of the shoppers as the steak they would select if all were priced the same. Good was preferred by 21.9 percent, Choice by 24.3 and Prime by 31.7, while 6.7 percent had no preference.

Another set of 4 steaks was shown a parallel sample of 503 shoppers. The only difference in the two sets of steaks was that the latter set was trimmed to 1/4 inch outside fat. The percentage distribution of preference showed slightly greater popularity of the more finished grades when additional outside fat was removed.

Some 500 consumers in Phoenix, Arizona, were shown colored photographs of Choice, Good, and Commercial rib-steaks. According to Arizona Bulletin 267, about 32 percent selected Choice if all grades were the same price per pound while 41 percent chose Good, and 27 percent selected Commercial.

A small sales test using U. S. Choice, Good, and Commercial T-bone Steaks by Washington State researchers revealed approximately the same results except that Commercial was even more popular.

It is easy to become confused by an array of percentages. The important thing that these figures reveal is that the leaner grades of beef have been much more popular than was previously believed. It used to be rather commonly believed that the leaner grades could be sold only because they were cheaper. However, these three studies of visual preferences at equal prices have shown that many consumers prefer the leaner grades.

What do consumers look for when buying beef? They apparently look for many things. There are many individual differences. However, many consumers reveal an aversion to fat, even in the form of marbling. Most consumers do not want much fat, per se. Many consumers do not associate fat with tenderness, juiciness, or other desirable eating qualities, so the fatter grades are not preferred.

Our interviews in St. Louis revealed that most respondents were more concerned about beef tenderness than any other eating quality. However, most consumers did not select Prime as the tenderest grade when shown the four-steak display. In fact, quite a large percentage thought the Commercial steak would be tenderest.

This leads us to a problem that preference researchers must wrestle with. That is the problem of determining both visual and eating preferences and evaluating the relative significance of each to the marketing of meats. It seems clear that properly cut and displayed meat with a bright red color and a relatively small amount of bone and fat will be readily accepted by most consumers. However, a few unpleasant eating experiences with tough or poorly-flavored beef may eliminate that shopper from the beef counter.

Since most consumers probably cannot obtain preferred eating characteristics by visual inspection, eating preferences must be obtained more directly. I know of only one publication, although I understand that several stations and the Food and Container Institute of the Quarter-master Corps are working in this area. We began this work in 1952 with a follow-up study of eating satisfaction of grades purchased in a sales test. Recently we have engaged in two fairly sizeable studies. The research has been very expensive and time-consuming. We have had to borrow and develop techniques as we went along. Some of the results have surprised us.

Sensible consumer eating preferences cannot be obtained between products which taste alike. Therefore, we ran a series of laboratory taste panels on loin steaks of various grades to learn which parts of the grading scale tasted alike. Our initial assumptions were that judges might be able to discriminate between products which were, say, two-thirds of a grade apart, and that the probability of discrimination would rise as we compared loins which were farther apart on the grading scale. Thus, we expected to determine by laboratory discrimination tests the grade comparisons which could be used to discover consumer eating preferences.

Several thousand eating tests were made with short loins from 140 cattle in early 1955. To our surprise, the panel of 12 judges discriminated approximately as successfully between steaks within the same federal grade as they did between steaks of non-adjointing grades.

Perhaps it is appropriate to discuss a few of the details of the experiments leading to these surprising results. Three loin steaks were used for each comparison. Two adjoining steaks were cut from one loin and one steak from the same relative position from another loin. Each judge received three samples. Each sample was from a different steak. Doubtlessly, many of you are familiar with this type of trio test. Each judge tasted the three samples and indicated the one sample that seemed different from the other two. Judges were permitted to use any detectable eating differences in deciding which sample was odd. Rigorous control of cooking methods, degree of doneness, and tasting methods was maintained.

Comparisons were made between loins of the same grade and different grades. For example, the 20 loins in the Prime grade were randomly paired with the 20 in the Good grade; and the Choice were paired with the Commercial. Six steaks from each loin were used in these between grade comparisons. Within grade comparisons were also made. Ten loins in each grade were randomly paired with the ten other loins and six steaks from each loin were used in these comparisons.

We assumed that all 20 pairs of Choice and Commercial loins would be discriminated between. Likewise, we rather expected that there would be no significant discrimination between the 10 pairs of loins within any of the grades. Actually, there was significant discrimination between only 7 of the 20 pairs of Choice and Commercial loins and between 11 of the 20 pairs of Prime and Good loins. Moreover, 7 of the 10 pairs of loins within the Commercial grade were discriminated between. The Good grade was most nearly homogeneous with only two significant discriminations among the 10 comparisons.

To put it another way, judges very often failed to detect a difference between steaks from different carcasses. Moreover, they were almost as successful at detecting differences between short loins within the same grade as they were between loins of non-adjointing grades. This would appear to limit the usefulness of determining either visual or eating preferences between present grades. These grades may not be meaningfully different products to consumers.

I do not dogmatically state that our present federal wholesale grades are not useful as consumer grades. I do mean that enough questions have been raised in our minds that we are seeking to discover some better system of consumer grades. Such a consumer grade system should classify all carcasses or wholesale cuts which are very similar organoleptically within a grade, while it should classify into different grades those carcasses or cuts which are organoleptically different.

Any good researcher must be constantly critical of his own results, as well as the results of others. We have asked ourselves if the discrimination found within controlled laboratory experiments may not be different

than would be found in the diverse cooking and eating situations of hundreds of American families. In other words, can consumers cook different grades of steaks in their own homes and detect differences? If differences are detected, which grades are preferred?

We began an attack on these questions with a recent experimental consumer survey. By area probability sampling methods, we obtained a panel of 266 households. Each household had two adult members who agreed to taste for us. Each household was delivered a pair of frozen loin steaks twice a week for three weeks. Ratings of each steak were obtained on a preference scale similar to the one used by the Food and Container Institute of the Quartermaster Corps. Then a choice between each pair was made by each adult. Two comparisons were made between Prime and Good, Choice and Commercial, and Choice and Choice grades. Cooperators were not informed of the identity of the grades or the fact that replicates were involved.

The analysis of these eating preferences is so incomplete that it would be unwise to attempt any systematic summary. It does appear that more than one-half of the 532 respondents switched preferences between replicates. That is, many respondents indicated a preference for the Choice steak rather than Commercial after eating one pair, but indicated a preference for the Commercial after eating the replicate pair at a later date. Either the eating difference in the steaks was too small to be discerned by these consumers or else they had no preference between the grades. However, there were a number of consumers who preferred fatter grades on both trials. Thus, we have an area of partial agreement with previous ideas about the eating qualities of grades.

Now that we have inspected some trees, may I suggest the outlines of the forest as they appear to me. There are four generalizations that I would like to make:

- (1) Fat, as such, is undesirable to most consumers. Most of us are probably convinced of this consumer attitude by now.
- (2) The fattening of cattle may not add as much to the desirability of beef as was once thought. There may be a large market which prefers very lean beef providing it is tender. Youthful beef animals and calves are very popular with consumers in parts of Missouri. The recent advances being made in tenderizing by various methods of meats suggests that consistently tender, lean beef may eventually be achieved.
- (3) Perhaps a better way of classifying beef as to flavor and tenderness can be found. Our results raise questions about the usefulness of present grades--whether federal or packer. May I add at this point that the two systems of grading seem to be essentially the same. We have no axe to grind for either type of grading. Surely a better method of determining eating quality can be found than looking at beef on the rail. A systematic search needs to be made for grading criteria which are specifically and consistently related to the preference of consumers.

- (4) Grades at retail level should be economically meaningful. Effective communication is one of the major problems of our time. Our business magazines are concerned with leadership, conference methods, and public relations. The great medium of communication between consumer, merchandiser, and producer is price although it has some well-known limitations. If most people like pink grapefruit better than white, prices tend to reflect that set of preferences. Producer and merchandiser adjust their operations to satisfy those preferences. One means of assisting the satisfying of consumer preferences in such a situation is to sort the grapefruit and label them pink and white. Can you imagine a retailer who would leave the two kinds unsorted? This retailers' answer to a shoppers' question is: "I don't know. Take them home and cut them open. Then you'll know whether they are white or pink." That's not the way to run a produce counter--or a meat case. Beef needs to be sorted to meet consumer preferences. Then price can serve as a really effective means of communication among consumers, merchandisers, and producers.

Considerable national attention has been given to the problem of producing and marketing a meat-type hog. The greater cut-out value of the leaner carcass has been demonstrated. There are those who think that consumers would pay more for selected leaner cuts than for the fatter ones. If it could be shown that many consumers do value leaner hams above fatter hams, for example, then there might be economic justification for consumer grades of pork.

Several investigators have tested the hypothesis that the federal carcass grades developed to differentiate cut-out yield to processors could also be used as consumer grades. Apparently, the tests to date have not supported this hypothesis. The only really large sales test of consumer reaction to cuts selected by carcass grades was the Pittsburgh study, and results have not yet been released.

However, Brice Kirtley reports interesting results from a sales test in one store. He reports that differences in fat/lean ratio in loins were less when using USDA carcass grades than when selecting the loins visually. Using the specially selected loins, he found that the leaner chops sold more readily than the fatter chops even with a 10 cent a pound premium for the leaner ones.

We have done considerable exploratory work over the past few years. Several small consumer panels have tasted pork cuts of various grades. The answer is very simple for those pork cuts like center cut chops which have most of the fat deposited externally. The more fat that is trimmed off, the better the consumer likes it. Considering the relative prices of lard and pork, this means the less fat that is laid on, the better off is everyone concerned. However, the solution is not so simple when the fat is deposited internally.

Our eating tests suggest that eating differences of the lean muscles among the vast majority of hog carcasses of marketable weight and age are so

small as to rule out grading on that basis. That is, the eating qualities of lean meat from Choice No. 1 carcasses are essentially the same as that from Choice No. 2 or No. 3. However, there may be certain processing problems with very lean smoked meats.

The basis for consumer pork grades apparently lies not in the quality of the meat but in the undesirability of internal fat to most consumers. We began a sales experiment last week in 14 supermarkets in Kansas City. This experiment utilizes two classifications of ham shanks, ham center slices, and rib end loin roasts. The cuts are classified by photographic standards and records are being taken to relate the grades to carcass weight and backfat. The experiment will run for 8 weeks and has a type of Latin square design pioneered by Cornell's Professor Max Brunk. Before commencing the sales study, we determined that the two grades were discernibly different. This was accomplished by showing 300 consumers pictures of the different grades and asking for preferences. Among white consumers there were almost no preferences for the fatter grades.

Pork grading, even if successful, would appear to be strictly a transitional device which by its own success would eventually eliminate itself. Let me explain. Fat pork is regarded as an inferior product. An inferior product will not continue to sell in the market unless there is a price difference that makes it attractive or there are many market imperfections. Fat hogs will not continue to be produced indefinitely for lower prices than lean hogs unless they can be produced sufficiently cheaper to compensate for the discount. Evidence suggests that the costs of producing meat-type hogs do not exceed the costs of producing fat-type hogs. The grading of pork and the transmission of a greater price differential to producers should accelerate the elimination of the production of fat-type hogs by most producers. Once this transition is accomplished there will then be only one grade of pork--a lean grade consumers prefer.

We should be aware that the American consumer may prefer some new meat products. The rapidly growing sales of manufactured items such as chopettes, steakettes, and sausages are very suggestive. Apparently a higher ratio of fat to lean is acceptable to consumers in these forms than in regular cuts. In a dynamic world we must beware of the tendency to think of meats solely in terms of traditional cuts and grades. The responsibility of those of us concerned with meats is to eliminate all possible causes of quality dissatisfaction. The sweet young thing who spends 40 hours in the office may never bother to learn much about the different cuts and the proper methods of cooking them. It's no wonder she is sometimes disappointed. The meat researchers of the Quarter-master Corps are experimenting with 6-way beef to guide their cooks. All beef cuts are classified as to suitability for broiling, braising, dry roasting, moist roasting, stewing, or ground beef. Perhaps we could learn a lesson in guiding our civilian cooks.

In closing, may I emphasize again that this is a progress report. Progress in research is slow. These ideas need further examination and critical appraisal. Some will probably need to be modified. But in the process, we should learn more and more about the preferences of the most important people in the world, the American consumers.

THE NEWEST IN MEAT MERCHANDISING 1/

In a revolutionary move to help broaden the demand for meat from livestock, Swift & Company has brought out of the test stage its new line of trimmed, tender frozen meats, packed in aluminum foil wrapped cartons.

This nationwide meat packer has developed a new frozen meat line that has "built-in" quality with emphasis on tenderness, flavor and convenience. In addition, Swift is eliminating excess waste fat and all bone in the new meat line, with one exception - the bone is not removed from lamb chops.

For the farmer and rancher this new tender frozen meat line will put the products from his livestock on a par with the fast moving list of frozen foods that are proving so popular with consumers.

Porter M. Jarvis, President of Swift & Company, said the company has invested years of research in developing this "new look" in meat that will help assure continued demand for meat and meat products.

The new frozen meat presents a drastic change in meat processing and selling. Swift research revealed that Mrs. Homemaker wants tenderness, convenience and a minimum of waste in the meats she buys. Price, of course, is important, but Mrs. Homemaker is willing to pay a reasonable amount for such services.

Here is how the frozen meat line is designed to meet these specifications:

- (1) It is trimmed of all bone and all excess fat. Only enough fat is left to give protection and add flavor.
- (2) Tenderness is of paramount importance. A special aging process, plus a taste test are used in the preparation and selection of cuts for the new meat line to help promote tenderness and insure flavor.
- (3) The meat in each package is first carefully wrapped in a transparent protective film and is then placed in a carton and finally wrapped in foil for maximum protection. These packages permit easy stocking of retail freezer cases and home freezer units. The attractive foil wrapper gives the frozen meats consumer eye appeal in a modern setting. Cooking instructions on each package help sell the housewife on the convenience of these meats.

1/ Presented by W. C. Haase, Agricultural Research Department, Swift & Company, Chicago, Illinois, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

For the livestock man the frozen meat line adds promise of broader markets for products from the livestock he produces. Swift's goal in the frozen meat line has been to increase the demand for meat by making it more attractive to the consumer.

The frozen meat line also may mean that the highs and lows of livestock and meat prices can be leveled off somewhat because of the adaptability of the product to freezer storage. Price fluctuations dictated by heavy or light marketings have been one of the serious problems facing both the producer and the meat processor.

One livestock producer pointed out after viewing the new frozen meat line: "Personally, I'm glad to see frozen meat in stores right along with the other convenience foods that have proved so popular in the past few years." He cited the tremendous increase in the sale of fish sticks recently, which is attributed to its convenience.

Years of research in the laboratory and surveys in stores and homes provide the background for this frozen meat, poultry, and pie line, which at present includes 44 items. The meat line is gaining steady acceptance in food stores throughout the country after months of testing on a restricted basis in several large metropolitan cities. At present, these products are being sold in many major markets throughout the country.

Many consumers and livestock producers alike have asked why the frozen meat line was not started years ago. The reason is that many consumers were not ready to handle it. In 1929, Swift first started its sale of frozen meats, but it was soon discontinued. Consumers did not have the freezer space to keep the product for any length of time; low temperature transportation was not readily available and retailers were not equipped to handle the product. The depression years of the 30's also hampered continuation of the line.

Since then the picture has changed. There are more than 30 million refrigerator freezer compartments and 8 million home freezers in America today, so storage is not as much of a problem.

In addition, 12 million homemakers who are employed part time or full time away from home want convenience for their cooking. Those who do not work outside the home are not the least adverse to convenience in this day of quick meals which leave more time for other household activities.

In Swift's trimming process for the new meat line, all bone is removed from the various cuts with the exception of lamb chops. From an ordinary pot roast, for example, more than one-fourth of the weight is trimmed away, later to be put to some use in the packing plant. From a rib roast the trimming amounts to almost one-third, and goes as high as two-fifths which is trimmed from a pork roast.

How about the cost of the new frozen meats? Trimming of this fat and bone has required an adjustment in the price per pound of the tender frozen meat. The cost per pound of product in the package must be more, since all

the bone (with the exception of lamb chops) and all excess fat are removed at the packing plant. Yet, ounce for ounce of meat the new product will cost Mrs. Homemaker little, if any, more than fresh meat. The additional costs of processing and merchandising the frozen meat will eventually be offset to a great extent by the savings in freight with less pounds to ship and keeping the fat and bone at the packing plant where economical use can be made of them. So, the live-stock producer is not "footing the bill" of this new product, but instead he stands to gain from increasing demand for meat and better markets.

Convincing Mrs. Homemaker that--quality considered--she is not paying an exorbitant price per pound of eating meat was and is a problem of education. Swift & Company had the same problem that faced the poultry industry a few years ago when it tried to get the consumer to take eviscerated poultry at a higher price per pound than New York dressed. When the consumer learned the merits of buying eviscerated poultry, the change came rather quickly. The answer to this question of the cost of producing tender frozen meats is not yet complete. However, Swift & Company firmly believes that it will eventually be an economical operation.

The early stages of any new production process can be compared to the building of a new model car. The first model is a hand-made automobile. After it is produced and receives approval, production methods are set up to make it in the most efficient way and at the lowest possible cost. Swift has a similar situation and is converting to mass production as rapidly as possible.

The trend to more "self-service" in the food store today has given added impetus to the sale of tender frozen meat. Mrs. Homemaker is willing to buy a convenience product if she can be assured that the product will be consistently good in quality. Swift's frozen meat line was developed to give the consumer what she likes in meat products--tenderness, flavor and convenience at a reasonable cost.

The present program to promote frozen meat was started by Swift in the spring of 1954 when the line was packed for the S. S. Pierce Company of Boston. At the time the line consisted of 14 items, including steaks, chops and roasts. Each cut was inner-wrapped in cellophane and sold in a waxed cardboard container with the cooking instructions printed on the box label.

This initial sales test proved that consumers would buy the product, and, more important, would return for repeat purchases.

In May, 1955, the tender frozen meats were marketed under the Swift Premium brand label in Detroit stores. The first week, six stores of one chain had the line. For each of the next four weeks, six more stores of different supermarkets added the line.

Consumer surveys revealed that 73 percent of the original purchasers of frozen meat continued to buy the meat items by the end of the first three-month period. Sixty-two percent continued to buy at the end of

the first six months. The items most frequently selected as "first-time" purchases were pork chops, pork loin roasts, sirloin strip steaks and veal cutlets.

Fabricated items, such as easy-to-serve loin luncheon steaks, hamburger patties, buttered beef steaks and sliced beef livers received excellent quality rating and repeat purchases.

Surveys also revealed that in any meat purchase there is an important relationship between price and quality. After paying a price which she feels to be high in relation to the price of corresponding cuts of fresh meats, the housewife expects superior quality. She insists on that consistently superior quality if she is to make repeat purchases, and for that reason Swift has made rigid quality control of paramount importance in the new meat line.

What has been the consumer's reaction to buying meat in the frozen state? Apparently there is very little adverse reaction by the Housewife. She has no objection to frozen meat if the quality is as good or better than fresh meat.

Swift carried out extensive research in attempting to find the correct temperature for storage of the meat. The research staff found that zero or lower temperatures were required for holding frozen meats for preservation of the product. When meat is stored at 20 or 25 above, the meat appears to be solid, yet only about 60 percent of the water in the meat is frozen. Scientists in Swift's research laboratory have found that at zero bacterial and most enzyme action is halted and the meat is frozen solid.

All meat used in the tender frozen line is selected for Swift's Premium quality. Research has shown that Mrs. Homemaker demands this quality in the meat she buys.

How does Swift give some assurance of flavor and tenderness in its steaks? With the tenderaging process, plus a strict taste test. A statistical sample of each lot of carcasses or cuts from the aging room is given this trial by a steak testing panel. Every steak tested must rate excellent to good in order to qualify the lot for the tender frozen line. If any steaks do not meet specifications, another more extensive test is made on the lot. Should any of these fail to meet the high standard the entire lot is taste tested and each carcass is approved or rejected individually.

High standards also are demanded for Swift's Premium Rib Roasts, Pot Roasts, Sirloin Roasts, Round Steak, Tenderloins, Beef for Stew, Pork Loin Roasts, Loin Lamb Chops and others. The appearance of the fresh meat is considered and the coloring and marbling of the lean meat must conform to exacting standards.

Some livestock producers who have inspected the line have asked what the livestock man can do to produce an animal that will have a greater proportion of lean to fat. And what about tenderness? Is there a genetic connection between the type of animal and tenderness?

Swift scientists have no easy solution to the problem, but they do point out that because of the special tenderaging process and taste testing Mrs. Homemaker is getting something in the tender frozen meat line that she cannot get elsewhere. With continued acceptance of such a product by American housewives, they add, it may well behoove the raisers of livestock to produce animals that most closely meet this demand.

Much work has been done in developing a meat-type hog. Sheep raisers are becoming more conscious of the housewife's desire for young, tender lamb. The cattleman has for many years raised the well-formed, well-finished cattle as the epitome of that kind of animal. Perhaps the livestock and meat industry should try and find out if tenderness can be bred into the animal.

In the frozen meat line Swift & Company has attempted to do with beef what has been done in the trimming of fresh pork, leaving just enough fat for protection and flavor.

Swift's new tender frozen line is divided into Basic Meat Cuts, such as Pork Chops and Beef Steaks; speciality or easy-serve items such as sandwich steaks and hamburgers; frozen meat and poultry pies, and frozen cut up chicken, both raw and pre-cooked.

Preserving the tenderness and flavor of the frozen meat with an effective and attention-getting wrapper was another prime target for the Swift research staff. It was finally decided after months of research and consumer surveys that the best wrapper would be an over-wrap designed to give the best possible protection and present the most appealing appearance to the prospective customer. The meat is now wrapped with a moisture-proof cellophane inner-wrap, placed in a cold-waxed carton and covered with a foil outer-wrap.

Even the color and design of the package were given rigid tests. Red invariably is the most attractive color to the shopper. The red and blue Swift's Premium label with a white background and a fresh, true color print of the meat cut gives the outer-wrap the right touch.

Many of the meat cuts, such as roasts, are formed to fit compactly into the carton. Yet the many different cuts did not lend themselves to uniform packaging for self service freezers--a vital point for convenience of stacking, both in the retail meat case and in the home freezer compartment. The various cartons eventually were designed to vary in length and depth, yet remain generally similar in width.

Cooking instructions are given on each over-wrap, and all suggested recipes are for the simplest method of cooking, with more complicated recipes left to the individual's taste.

What has been Mrs. Homemaker's reaction to buying meat in closed packages? Apparently very little adverse reaction if the product bears a brand for which she has respect and can depend on for quality.

Swift is backing its faith in the new frozen line with an extensive advertising program designed to attract and educate the American housewife in the new meat. Other meat packers may soon follow Swift's lead in the field. Once on a mass production basis and sold on a nationwide scale, it is felt that the new line will rapidly become the meat of tomorrow.

PROMOTION OF MEAT PRODUCTS BY SHEEP, BEEF, AND SWINE COUNCILS ^{1/}

The livestock producers who are at one end of the marketing channel are beginning to realize the real stake they have in the field of consumer education. If our marketing system is to be consumer directed, then how the consumers behave is of primary importance. Many livestock leaders recognize that there is an obligation on the part of producers to see that the consumer has adequate information and opportunity upon which to base decisions and choices. Today, the beef cattle, swine, and sheep producers are in the process of organizing into State and national councils for the purpose of increasing the sale and consumption of livestock products through research, education, promotion, and merchandising methods.

The eyes of many livestock leaders and interested segments are now focused on the domestic sheep industry's newborn child - the American Sheep Producers Council, Inc. This newborn infant of the sheep industry was conceived in 1953. The passage of the National Wool Act of 1954 established its legitimacy.

Last August when sheep producers in U. S. voted favorably to activate Section 708 of the National Wool Act of 1954, the stage was set for a program of advertising, promotion, publicity and marketing analysis that should pay off through an increased demand and higher prices for lambs and wool to the producers in the future. The American Sheep Producers Council passed its first crisis when Secretary Benson activated Section 708 of the National Wool Act on September 12, 1955.

The first meeting of the initial Board of Directors of the American Sheep Producers Council, Inc., a corporation not for profit, duly organized and existing under and by virtue of the laws of the State of Illinois, was held at the Congress Hotel in Chicago on the 12th day of September, 1955. By this time the 15 Board of Directors had been previously selected from seven different sheep and wool producer groups. At this time G. N. Winder was elected as President and Chairman of the Board of Directors; Jas. H. Lemmon was elected as Vice-President and J. M. Jones was confirmed as Secretary.

The first annual meeting of the Council's 50 delegates was held at the Congress Hotel in Chicago, September 12, 1955. The memberships (delegates and Board of Directors) were selected, according to the by-laws, on an area basis. This had been agreed upon to be an equitable representation of producers of lambs and wool. At this first meeting applications for membership were received from the National Lamb Feeders Association, the National Sheep Association, and the New Mexico Wool Growers, Inc. The National Lamb Feeders Association and the New Mexico Wool Growers, Inc.,

^{1/} Presented by Ralph H. Grimsnaw, Extension Specialist, Animal Science, Ohio State University, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

were admitted to membership in the Council. The petition of the National Sheep Association was deferred pending completion of their organization. This increased the Board of Directors to 16 members and the delegates to 52.

Up until the time of the second meeting of the Board of Directors of the Council, September 19, 1955, this newborn council was being fed and developed through the efforts and money of its Board of Directors. At this time Secretary Benson authorized the borrowing of a line of credit of \$250,000 later increased to \$450,000, for starting an intermediate program prior to the time that the regular incentive payments would be available. This organization and its activities are to be financed through the deduction of 1¢ per pound from incentive payments on wool and 5¢ per cwt. on lambs and yearlings intended for slaughter. During this second board meeting the principal office of the Council was moved to Denver, Colorado.

Ever since this time the American Sheep Producers Council has been working full speed to help solve some of the marketing problems of sheepmen. In order to help this newborn sheep industry to adjust to society, the Department of Agriculture started to assist through marketing research division of Agricultural Marketing Service by carrying out four lines of market development research relating to wool and lambs. One is the national household consumer survey regarding women's uses of and preferences for wool in certain items of apparel. Second project was a use and preference survey in the City of Cleveland, Ohio, concerning lamb and mutton. Third is a national survey of a representative sample of retail stores from which they shall obtain a fairly precise set of estimates by four major regions and by urban-rural classifications of the percentage of stores handling lamb, the approximate volume of lamb handled, and various problems encountered in retailing lamb. Fourth project is a national survey of meat packers; shipments of lamb by States and regions and points of destination.

Each of you should read and study the summary of two of these above surveys, which are now printed. One is on the Distribution of Lamb and Mutton for Consumption in the U. S. Certainly this survey reveals one of the great marketing problems which faces the American Sheep Producers Council and sheep producers. This survey shows lamb and mutton unevenly distributed in the U. S. Over half of the lamb and mutton produced in 1954 went to New York, California, and Massachusetts.

New York and California each received more than twice as much as any other State, their proportions being about 24 and 21 percent, respectively, of the total available supply. Massachusetts was third with 8 percent.

Other States of some importance in the quantity of lamb and mutton distributed to them as a proportion of the U. S. total in 1954 were: Pennsylvania 6.2 percent; Illinois 6.2 percent; New Jersey 5.9 percent; and Michigan 4.3 percent. These four States plus New York, California, and Massachusetts took 76 percent of the United States' supplies of lamb and mutton available for consumption. By contrast, less than 1 percent of the U. S. total was distributed to 10 States--

Vermont, North Dakota, South Dakota, West Virginia, South Carolina, Alabama, Mississippi, Arkansas, Oklahoma, and Wyoming. On a per capita basis, lamb and mutton available for consumption in 1954 was by far the highest in Massachusetts and California with 12.4 and 12.3 pounds, respectively.

A second project has been completed. "Homemakers Preferences for Selected Cuts of Lamb in Cleveland, Ohio" is now available in the Marketing Research Report No. 113. This survey summary is now being studied by American Sheep Producers Council Board of Directors to decide how its best to go about this job of promotion and education. If you are not aware of some major points covered in the findings here are a few of the major ones:

- Users and nonusers of lamb--Almost 5 in 10 homemakers in Cleveland area used lamb in the preceding year. Approximately 1 in 6 bought lamb during the week preceding the interview. Among the nonusers, about half had used it at some time in the past.
- Characteristics of users --Homemakers in the upper income groups, the better educated group, and in the group over 45 years of age are more likely to use lamb than those from lower income, education, or age groups. Those whose parents were born in the Northeastern or North Central States were also more likely to be lamb users than were those whose parents come from other parts of the country.
- Frequency of serving --Out of every 10 homemakers who use lamb in the last year, 3 served it 3 or more times a month; nearly 4 served it at least once a month, and another 3 served it less than once a month.
- What users like about lamb --The more important reasons given for liking lamb are its distinctive flavor, its nutritive qualities, its lean, tender texture, the ease of preparation, and the variety it adds to meals.

Contributions to the American Sheep Producers Council may total more than \$2,000,000 for the first marketing year. For the first time in history this should give a group of livestock producers sufficient funds that they can try out, on a national scale, promotional and educational activities of such a magnitude they should be able to see if the demand for their products can be increased and the price situation improved. To help insure the success of this venture the A.S.P.C. has asked for and is securing the whole-hearted cooperation of the packers, the retailers - both chain and independent - the restaurant and hotel associations, the transportation segments, the consumer, the National Livestock and Meat Board, the American Meat Institute, the Wool Bureau, woolen manufacturers, retail clothing stores, specialty shops that are handling products of sheep industry and most all of the sheep and wool producers associations.

To help in the promotional activities, the Council has employed the services of a nationally known agency Botsford, Constantine, and Gardner that will concentrate their efforts on increasing the demand for lamb. The wool promotion will be done through the American Wool Council and

the Wool Bureau, organizations which are already set up and operating and doing a splendid job but are handicapped because of the lack of funds. Every modern media of communication will be utilized so far as funds will permit in the promotional activities of the Council. This will include newspapers, national magazines, the radio, television, expositions, home shows, cooking schools in the case of lamb, and direct contact with home economics workers in schools and colleges.

Following intensive research by A.S.P.C. and its advertising agency, the following consumers areas were selected for promotions through July 1956. (See exhibit on chart.) These markets were selected after consideration of such factors as per capita consumption, proximity to available supply, acceptability of heavy vs. light lambs, existing channels of distribution, availability of Department of Agriculture research facilities and timing in relation to lamb crops.

To date, may I call your attention to results in the Denver Area. One chain with a previous high of 100 lamb carcasses per week sold 453 whole carcasses the first weekend of the promotion. One chain is still selling three times more lamb than its lamb sales were before the present promotion. Another chain sold 40 percent more lamb than it does normally when pushing it. Some independent retailers sold out lesser-demand cuts, such as riblets, as a result of the advertisements featuring those cuts. Lamb increased from approximately 3 percent of all red meat before the promotion to about 7 percent during the promotion period. Previously the average Denver resident ate an estimated four to five pounds of lamb a year. During the promotion consumption was boosted to a rate corresponding to ten and a half pounds a year. One chain, whose lamb business was 2.4% of its meat volume increased it to 10%. Another chain increased lamb meat volume from 2 to 6.6 percent. A third reported a lamb gain from 3 to 5.8%. Many livestock commission salesmen said the program had a definite beneficial effect on the stability of the live market.

An analysis of the A.S.P.C. Lamb Advertising Account as handled by Botsford, Constantine and Gardner will indicate how sheepmen's money may be most wisely spent. During the last 6 months 40 separate B.C. & G. employees have spent time equal to four and half people working full time for 6 months. Some of the worthwhile know-how that will be secured for A.S.P.C. will be analysis of use of newspapers, TV, radio, trade and institutional publications, in each areas to A.S.P.C.'s requirements for coverage, penetration, suitability to message, cost per thousand, total cost in relation to budget, etc. Studies on problem of regenerating consumer interest in lamb, determination of what are the most appealing benefits of lamb, preparation of advertising to hotels, restaurants and other institutions. Creation and preparation of point-of-sale materials, store banners, recipe folders, mats, etc. Merchandising problems will be studied which involves close cooperation with producers and packers to assure supply of lamb to retailers and problem of pricing. The industry is beginning to learn a great deal about consumer attitudes toward lamb. Every move that is made is for the purpose of gaining greater knowledge of the sheep industry problems and how to overcome them.

The services of Mrs. Ella Nisja, recognized nationwide as one of the country's most able food publicists, has been obtained. Her job to help secure editorial news on lamb and its use being featured by newspapers, magazines, TV and radio, etc. As part of the A.S.P.C. service Mrs. Nisja also calls on the help of widely recognized consultants as those of Home Economics Director of Swift and Co., editor of American Restaurant Magazine, and Eleanor Howe, publisher of What's New in Home Economics magazine.

At the May 21 to 23 Board of Directors meeting of A.S.P.C. the board studied reports of three committees. One on wool, one on lamb, one on administration. Each of these three board member committees reported on promotion problems, possibilities within budget limitations and etc. This is an example how the board members are working together. The Lamb Committee report recommended starting July 1, 1956 a promotion program in these areas of eastern U. S. Some of the eastern cities are:

<u>City</u>	<u>Start</u>	<u>Duration</u>
Cleveland	July	12 months
Washington, D. C.	September	10 months
Baltimore	September	10 months
Philadelphia	July	12 months

Many of you may be interested in getting in contact with one or more of these areas and study the program and learn about the results.

At the May meeting of A.S.P.C. Board of Directors they announced the appointment of three key personnel to head the various activities of the Council. Gale D. Smith, Salt Lake City, was appointed by Board as a Director of the Lamb Promotion Department. Evadna Hammersley, Denver, will direct the work of the Lamb Consumer Service Division, and Richard D. Biglin, Chicago, will take over as Director of the Information Service Department.

An \$800,000 budget was set up for the continuance of regional promotions for lamb promotion and field promotion. Money was set up for exhibit material which can be used at State fairs and State meetings. Money was ear-marked for a color film on production of lambs and wool.

A \$600,000 budget was set up for wool, most of which goes to the Wool Bureau. Some money was designated for "Make It Yourself With Wool" and other projects.

The parents of this child, the American Sheep Producers Council, the sheep producers and those of us in educational, research and marketing work will need to exercise patience and understand the problems with which the Council is confronted. Yes, we must be critical but constructively so; we must help direct in the proper channels. We must have confidence and help explain the Council's objectives to some who would like to see the work of Council fail, or others who would do the job some different way. As educational leaders we need to sufficiently acquainted with the purposes and objectives of A.S.P.C. so that we may help others have a better understanding of why development of council program is so important to the sheep industry. To date, some of the common criticisms that have been directed at the Council and the National Wool Act are:

1. Instead of deductions from incentive payments amounting to 1 cent per pound of shorn wool and 5 cents per cwt. of lambs and yearlings marketed for slaughter, contributions should be voluntary. In the referendum held last August to determine whether Section 708 should be activated, the vote was quite favorable. Many of Ohio Sheep Improvement Directors are looking forward to seeing the present program work, so successful that funds for promotion can be derived from deductions from sales of lambs and wool at the market place.
2. The fear, on the part of some agricultural leaders, that other producer groups may want a similar program to that of the sheepmen financed along the same lines. To date, this is not true.
3. The objection of some farm organization leaders that the check-off from incentive payments at the government level may lead to political abuse and maneuvering may have little justification. It has been the concern of the Secretary of Agriculture to see that this program functions in the interest of producers. As a check on the program of the A. S.P.C. approval of all proposed projects and expenditures of funds must be given by the Secretary. If at any time a substantial number of growers are dissatisfied they may petition the Secretary for a referendum to decide whether deductions shall continue to be made.
4. The claim that the A.S.P.C. will duplicate much that is being done now by such organizations as the National Livestock and Meat Board, the American Meat Institute, the National Lamb Feeders Association, the Wool Bureau, etc., is unfounded. It is the stated policy of the A.S.P.C. directors to work through existing promotional agencies wherever possible.

For those of us who are interested in all meat animals may I present these following comments:

1. Just because the suggested activities represent a new approach as an aid to building better markets, let's not condemn it without a fair trial. It may open up a whole new concept of what producers can do to improve their economic position.
2. Lamb, except in certain areas on the East and West Coast, cannot be considered as a staple meat. Actually, it competes more with poultry and fish than it does with pork and beef and an additional consumption of 1/2 to 1 pound per person each year would have little effect on the other meats.

3. By supplying the lamb and getting a wider acceptance of it in areas where it is not used sparingly, markets for it will be widened. Broadening demand can aid in the diversion of lamb from metropolitan areas of the East now so largely depended upon for the utilization of this product. Restricted outlets, with over supply, are so often responsible for the wide fluctuations in lamb prices. Better distribution should overcome some of these difficulties.
4. While it is of utmost importance to promote lamb, the A.S.P.C. is equally concerned with developing more outlets and greater consumption of domestic wool. Synthetics have gone from about 1/2 pound per capita in 1920 to over 8 pounds in 1954. Cotton usage has also gone up. The fact that the use of wool is so low is not due to any deterioration in its quality or desirability for fabrics.
5. Producers must do this promotion because most textile manufacturers do not now limit their output to fabrics from one fiber, but often use several, alone or in combination with others, and do not push all-wool items as extensively as some mills previously did.
6. Manufacturers and clothiers make and sell what the public demands. Men's wear merchants state that they prefer to sell all-wool fabrics in most cases because of their greater serviceability and lower cost. However, dacron, orlon, nylon and other synthetics are so highly advertised and so skillfully promoted that the public asks for them without knowing whether they will give satisfactory service.
7. Producers must concern themselves not only with the growing of meat, wool and other animal products, but must learn more about marketing them efficiently. This may mean some radical changes from our present practices. In the case of wool, we need better methods of growing, shearing and preparation of the wool for market.
8. By contributing an average of 8¢ per ewe and 4¢ per lamb from incentive payments, a program of great value to producers can be developed. If the price of live lambs can be increased 25¢ per cwt. and returns from shorn wool by 5¢ per pound, an additional income to sheepmen of approximately \$50,000,000 per year will result.

Cattlemen are interested in promotion. The following progress has been made: (Taken from Ohio Cattle Feeders Association newsletter, James H. Warner, Secretary).

1. Cattlemen gave birth to the general idea of expanding "beef promotion" beyond the concept of the National Livestock and Meat Board at a meeting in Denver in February 1955. They formed a National Beef Council. Legally organized and incorporated. The Presidents of proposed State Beef Councils

would serve as Directors. They provided for Regional Directors representing specified groups of States. The plan was to encourage States to organize State beef councils according to their own ideas. The National Beef Council would serve in an advisory coordinating capacity on a cooperative basis. A voluntary check-off by market operators and producers on all cattle sold would be the source of money. Each State to assist the National Beef Council as it chose. Also to provide additional money to the National Livestock and Meat Board.

2. In a year's time, nearly 30 States have organized beef councils or are in some stage of organizing. The approach varies over the United States. Some States have secured State legislation to provide legal authority for a mandatory check-off at all markets on all cattle. Other States may do likewise. One State is already making a check-off on the proposed voluntary basis. Most States are approaching the problem on a cooperative voluntary basis rather than asking for either State or Federal legislative authority.

Recent proposals have confused many livestock producers. Some of these recent proposals are:

1. Governors of Iowa and Nebraska invited all mid-western governors to come to Omaha on March 20 and 21. Some governors attended - others sent representatives. There was a wide difference of opinion expressed at Omaha. Plans were made for a meeting to be held at Des Moines on April 26. Sheepmen did not attend Omaha meeting.
2. The Omaha plan proposes that a "National Meat Council" be formed as the top promotion organization with 1 sheepman, 5 hogmen, and 5 cattlemen as directors. It proposes that all money for meat promotion into the "National Meat Council" and be distributed by them according to some formula. Maybe 40% to the National Livestock and Meat Board, 40% to 3 National Specie Councils (some not yet organized), and 20% to State Specie Councils, still largely in the dream stage in most States. There was much talk of an "automatic check-off" instead of "mandatory" or "compulsory" check-off, the need of a referendum to bring all producers and market operators into the program and "meat promotion" seems to be the idea rather than "beef," "pork," and "lamb" as separate specie products. The report from this conference emphasizes that producers want to do more promoting of their product. There was a wide difference of opinion on how to go about it.

To date, there are some major differences in livestock leaders thinking about the promotion of meat products. These are mainly:

QUESTION NO. 1 - Referendum or Cooperative? Sheepmen are involved in a 4-year plan made effective by a Federal referendum in which the

owners of 72% of the sheep favored. Hogmen have not yet come up with a specific plan of their own. Some cattlemen toyed with the idea of a Federal referendum providing for a mandatory check-off similar to the sheep folks except the source of money to be from producers at the time of selling and collected by market operators. This idea has been rejected by many cattlemen councils.

QUESTION NO. 2 - Shall it be meat promotion or beef, lamb, pork each on its own? Many producers interested in an expanded promotional effort agree that "meat promotion" as done by the National Livestock and Meat Board is no longer the "only way" to do the job and are moving to develop new ideas and more modern avenues of obtaining results. To many it seems logical that each specie group, raising their own money and controlling its use in "running their own show" can be most effective because of the great difference in regional operations and interests. Many others will prefer that money be spent for all red meat promotion.

QUESTION NO. 3 - Which?? Central control or de-centralized?? The question is over State vs. national means of collection. The Omaha approach is to create a "top" National Meat Council to receive and distribute all promotional money. This idea apparently is based on "uniform" "automatic" check-off on all specie of livestock if approved by a voter referendum.

A second governors' conference was called at Des Moines on April 26. A statement of policy from Des Moines meeting was:

NOW THEREFORE BE IT RESOLVED:

1. That there is hereby created a National Livestock Promotion Board to be composed of the following representatives from the following organizations and named by such organizations:

- 3 - National Beef Council
- 5 - National Swine Council
- 5 - National Wool Growers - National Lamb Feeders
- 2 - Corn Belt Feeders Association
- 1 - Iowa Beef Producers Association
- 1 - American National Cattlemen's Association
- 1 - American Farm Bureau
- 1 - National Grange
- 1 - Farmers Union
- 1 - National Livestock and Meat Board

This committee is empowered to call related segments of the industry in advisory capacity.

2. J. C. Holbert is named as temporary chairman of such Board to formulate its organization.
3. That the purposes and objective of such Board shall be:

- a. To assist in the organization and development of State and national cattle, hog, and sheep producers product promotion organizations through coordination and dissemination of information, suggestions, and advice.
- b. To coordinate the action and work of the livestock producers promotion organizations in those areas of common interest and concern.
- c. To take action to remove present legal obstacles of any uniform mark-off system for the collection of funds at the time and place of sale of livestock to be used to defray the cost of such program.
- d. To develop the cooperation of marketing agencies, processors and retailers with livestock producers promotion organizations.

I chose to call your attention to some of the differences in livestock producers' thinking about how sheep, beef, and swine councils should work and secure promotional funds. We have an opportunity now to help our livestock leaders to cooperate together to help find the solution for sound promotion program of meat products, whether it be through sheep, beef, and swine councils or otherwise.

PROBLEMS ENCOUNTERED IN THE
DEVELOPMENT OF A NORTHEASTERN LIVESTOCK MARKET 1/

One of the current problems was to find the time to prepare this speech. It is a continuing personal problem for me to find ways to prepare adequate and interesting reports for a Board of Directors, four times each year; four Managers Meetings, twenty eight Market Advisory Committee Meetings! To this total of forty three fixed commitments are numerous other special meetings of all kinds, and requests to appear on programs of local units of Empire's six sponsors, whose combined membership approximates nearly all of the farm families in our State. You can readily understand that such meetings are opportunities for us to promote Empire, so we take them, and somehow find time to prepare our presentations and still run a business. I will admit that such preparations serve to sharpen up one's knowledge - it is like taking inventory. I am sure most of you have the same problem of where to find time to do all of the things that ought to and need to be done, so you make time usually by taking it away from your own time. Especially if you have responsibility for others. I can assure you it can't be done in a forty hour week.

Generally speaking, Empire has a big problem in getting its story to the people who need to know the differences between Empire and other auction markets. Unfortunately, too many people look upon Empire as just another Auction Market, and include Empire in the blanket indictment of alleged sharp practices, whereas in reality Empire has done more to "clean up" unethical practices in ten years than was possible in the last fifty. It is sad to relate in this day and age that there are still many farmers who like to "dicker" and honestly believe they are a match for the professional, whether he be a dealer, packer buyer, auction market operator, or livestock specialist. Such people usually "get taken" because they still believe it is possible to get something for nothing -- Bob Rector has a favorite saying on the subject "when you are offered something for nothing, take damned little of it." Since we don't sell dairy replacements to farmers on long time credit, but rely on banks and other credit agencies to perform this function, we no doubt lose business. This is a problem. Since we don't own trucks but prefer to work with local truckers who know the roads, the people, and can use their trucks in many other ways, we probably lose business. This is a problem. Since we don't buy livestock from farmers and dealers, but work hard to get the best buyers from the established large and small packing houses to regularly attend our sales by establishing an atmosphere of trust, confidence, and comfort in which they can select the livestock they need, we probably lose some business which other markets get. This is a problem. Neither will we import feeder cattle, lambs, or dairy replacements to sell on speculation. We will buy for anyone who is willing to give us a firm order and pay a reasonable fee for services rendered. We sincerely believe we can do a better

1/ Presented by Raymond V. Hemming, Manager, Empire Livestock Marketing Cooperative, New York, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

job for our patrons when we get a known commission instead of trying to implement our income by outsmarting the people we profess to serve. Ours is the only business, to my knowledge, that opens up each sale day without inventory, without knowing if there will be any product, a little, or a lot, yet adequate personnel must be on hand on the assumption that business will be done. We have to have livestock -- but we can't buy it to make sure we have it. This is a problem.

According to the editors of "Dun's Review," in their June, 1956 edition, every business has an unlisted asset. Editorially they say "No balance sheet ever includes the value of all the assets of a business. The most important asset which is omitted entirely, is the value of the organization itself." We could argue at some length as to what is meant by the word "organization," so let's assume we agree it means people - those who are elected, those who are hired, and those who use the services, members, if you will, of an organization are all a part of the whole. It doesn't take long for an organization to acquire a reputation. It may be good, it may be bad, but, it will emerge. It is therefore, of prime importance to get started very early in the establishment of a good reputation. It is a real problem, to do this, because the situation often is aggravated by definite financial needs of the moment. It is easy to be honest, and virtuous, and to live entirely within the tenets of the ten commandments and the principle of the Golden Rule, when all bills are paid, reserves are ample, and operating capital adequate. It takes real courage and some prayer to turn down income that is temporarily available but not in keeping with long time policies commensurate with a good reputation, especially if you have been looking at too little income and too much expense in the early days of establishing a livestock market. It is a very real problem to acquire personnel, meet the payroll, expand the business, before you can match the costs of such growth out of earnings that result from the steps taken. Now, before we get any further into the topic assigned to me "Problems Encountered In The Development of a Northeastern Livestock Market" it seems to me that we should establish some basic facts. First, that the type of agriculture in this part of the United States has a definite effect on marketing habits of our farmers, most of whom are dairymen, and therefore, derive the majority of their income from the sale of milk. Their views on and interest in livestock marketing is different than that of the midwestern cattle or hog producer whose main income is from the sale of meat animals. Incidentally, around here, when you hear the words "beef cow" it is not a Hereford or Angus, but is the term usually applied to a Holstein, Guernsey, Ayshire, or Jersey cow no longer useful as a producer of milk. Conversely, such animals when sold by their owners do not return prices akin to what such owners pay for steaks and roasts and since such owners honestly believe that such steaks and roasts come from dairy type cows they sell for meat, they ask pointed questions about who makes all the money. Guess this can be listed as a problem -- it is an almost universal belief. Farmers generally do not realize that most eating beef doesn't come from old dairy cows. You will readily understand, then, that the dairy cow as a milk producer and a meat animal figures prominently in any livestock market plans here. Secondly, a fact that should be established, to enable you to better understand our problems, is that there is a middleman here, (1600 to be exact) licensed to do business as a "Cattle Dealer." This fellow is one of our principal

suppliers of product, and at the same time, our toughest competitor. He comes pretty close to that definition of a woman I heard somewhere, "A woman is a person a man can't live without, or with." Well, let's see what we can do to tell you of some more of our problems, past, present, and future. The real trick in doing this is to remain objective -- I don't want anyone to interpret my remarks as excuses for anything we have or have not done. I am tremendously proud of this organization, and its employees, which in less than 10 years has grown from an idea into a reality -- without even so much as once resorting to lies or cheating in the marketing of 1,552,000 animals, with a gross dollar value of \$100,000,000. When I can, I like to work from a chart, so let's take a look at this one. You will observe that it is captioned "Methods of Marketing Livestock" and listed are:

- | | |
|---------------------|--------------------|
| 1. Neighbors | 2. Dealers |
| 3. Locker plants | 4. Buying Stations |
| 5. Grade and yield | 6. Packer Buyers |
| 7. Pools | 8. Auction Markets |
| 9. Terminal Markets | |

These are the ways open to our New York State farmers to market livestock. Each one has its place. I call your attention to the fact that six of the nine methods listed are direct transactions between the owner of the livestock and someone else but that NO KNOWN MARKETING EXPENSE IS APPARENT. You know, and I know that one is present but it is buried in the margin which the prospective buyer expects to make on the transaction, or refuse to buy. Of the other three, pools, auction markets, and terminal markets, the last two are the more prominent, but all three charge a commission which is a known marketing cost. It is their only income, and is limited in amount. I believe I have made my point -- Let's see which method Empire adopted:

A Certificate of Incorporation of Empire pursuant to Article 7 of the Cooperative Corporations Law of the State of New York was filed in the Office of the Secretary of State on March 5, 1946, by its sponsors: the New York State Farm Bureau Federation, the New York State Grange, the Producers Cooperative Commission Association, the Dairymen's League, and the G.L.F. The New York Artificial Breeders' Cooperative later became a sponsor.

Empire Livestock Marketing Cooperative is a farmers' organization owned by farmers through, and operated under, policies established by the sponsoring organizations to provide orderly, well-placed markets throughout the State.

Two directors from each of the sponsoring organizations constitute our board of directors of 12 men. Each organization has an equal vote on this policy-making board, thereby demonstrating clearly the unity of purpose of the organizations backing Empire.

I know of no better way to tell you why Empire was organized than to quote the following statement of E. P. Forrestal, our president, on the occasion of the opening of our sixth market at Caledonia, New York, on March 29, 1949. To my knowledge, this is the only factual reference available on the history of the formation of Empire:

"Up to the time of the formation of Empire, the New York State farmer, except in the territory economically served by the Buffalo terminal market, had no place to go with his livestock and never had a market where prices were determined by the laws of supply and demand where he could get expert sales service by salesmen who were informed concerning market prices and grades of livestock. We of the Buffalo producers had come to recognize the marketing problems of livestock producers here in New York State. Warren Hawley, then president of the Buffalo Producers Livestock Marketing Cooperative, set up a committee to suggest possible action which could furnish a fair and equitable market for New York State livestock. The Committee decided that the problems involved were too great to be solved by the Buffalo producers or any other single organization.

"In July of 1945, Mr. Palmer Flourney, Mr. Clayton White, and I, representing the Buffalo Producers consulted with Mr. Ed. Babcock and with Mr. James McConnell. We had a meeting with them in Ithaca. Out of that meeting came the suggestion to bring together representatives of all the farmer agencies in the State who were interested in meat animals to attempt to develop a coordinated program of livestock marketing. The first meeting was held in Batavia in August of 1945. It was a preliminary meeting attended by representatives of Cornell, the G.L.F., P & C Markets, and the Producers to explore the possibilities of organizing a committee and to decide what organizations should be interested.

"We came to the conclusion that a sound livestock marketing program could be developed only by the true cooperative effort of livestock producers, marketing agencies, consumer agencies, farm organizations, and our own College of Agriculture. After that meeting, we held various consultations and meetings to organize a get-together of all the groups I have mentioned. On December 21, 1945, we had an all-day session at the college in Ithaca, which was attended by representatives of the following organizations: New York State College of Agriculture, the New York State Farm Bureau, the New York State Grange, the Dairymen's League, the G.L.F., the P & C Markets, and the Producers Cooperative of Buffalo.

"That was a very remarkable meeting. There we had gathered together the top executives of the organizations that had been developed for the betterment of agriculture of New York State and we have them here today: busy men who are willing to devote time, energy, and brains to the development of a better livestock marketing system for New York State. Prepared statements were presented by Professor Curtiss, Professor John I. Miller of Cornell University, J. E. Roberts, Bob Martin and the late Rolland E. Foley of the Buffalo Producers and the late Henry Rathbun of the Dairymen's League, Fred Morris, leader of county agents and Jim McConnell, then general manager of the G.L.F.

"It was unanimously decided that a cooperative should be set up, the directors of which should be chosen from each of the five cooperatives represented. A committee was appointed consisting of Mr.

McConnell, Professor Curtiss, Professor Miller, Mr. Tom Milliman, Mr. George Pfann, and me, to develop plans for a permanent organization. That committee made their recommendations to a general meeting on January 5, 1946, which with minor modifications, were adopted and the Empire Livestock Marketing Cooperative was born.

"I have tried to give you a brief history of the development of Empire to bring out in some detail first, the general recognition among all farm groups of the urgent need for the services which this organization can render. Second, the high type of capable men into whose hands the farmers of this State have placed their business and educational affairs. Third, that Empire is founded upon sound basic principles of cooperative effort owned by farmers with its policies dictated by farmers. Fourth, that it is set up to provide a fair, dependable, free, open and orderly market to which farmers can bring their livestock and slaughterers, and processors can buy their requirements where prices are determined by the law of supply and demand. We know that we have acquired a fine organization of loyal, competent men to conduct this business.

"The rules of the game to be followed here in Caledonia are the same rules that are followed in every Empire market. The rules that are followed only in America in every legitimate, honorable business: namely, all men come here as equals. There will be no unfair advantage to any buyer or to any seller. That is the challenge that the board of directors offers to the farmers and packers of New York State in presenting these facilities."

In my opinion there is ample evidence to prove that the challenge has been accepted because the second addition to the original facilities at Caledonia has been completed, making possible the multiple selling of livestock at auction in two sales rings at the same time. We are presently building a new set of unloading docks which will be the best in the east. It is the most modern and largest livestock auction in the State. Regular sales are held each Tuesday, also special monthly hog pools. The building is the place where the New York Livestock Show & Sale is held each year. This annual event is sponsored jointly by the Breed Associations, New York State & County Extension Services, Cornell, Empire, Beef Cattlemen's Association, and Buffalo Producers. It was the idea of our own Supervisor of Markets, Robert E. Rector, who has worked hard to develop it. Two divisions are allowed: an open division and a 4-H division. Only boys and girls under 21 years can compete for the awards in the 4-H Division. Quality and entries are improving each year. Breed Associations use the yards for their sales. Last year, for the first time, the western division of the New York State Beef Breeders and Feeders Improvement Project, Inc. held their feeder calf sale there -- also their group heifer sale this spring.

Our very first undertaking was a Lamb Grading Demonstration and Sale at Watkins Glen, New York, on November 4, 1946. Why was our first venture in the marketing of lambs instead of cows in a dairy state? It was because Professor John Willman of Cornell University believed

that my experience in lamb pools in Ohio might be of some help to the fading sheep industry here. Professor Willman enlisted the aid of George Johnson, Sheep Extension Specialist, and Irving Davis, Schuyler County Agricultural Agent. I was able to "borrow" from F. G. Ketner the services of Robert E. Rector, then with the Producers Livestock Cooperative Association, Columbus, Ohio. It was a great day -- somehow Bob graded 1,900 lambs, and we sold them. Out of this joint endeavor came the rebirth of the Schuyler County Sheep Breeders' Cooperative Association -- it has employed Empire each marketing season to grade and sell its members' sheep and lambs. The Watkins Glen Lamb Pool has grown from the 1946 total of 1,918 head to the 1955 season total of 9,000 head. The 1956 season has 12 scheduled pool days.

It may be somewhat of a surprise to some people to learn that the State of New York has considerable livestock. Our dairy cattle numbers exceed 2,000,000 head. Of this number, almost 400,000 cows and bulls go for slaughter annually. Some 800,000 calves are sold for meat off of New York State dairy farms each year. Also, beef-type cattle numbers have increased 400 percent since a few years ago -- now 70,000 head. This is progress in a dairy State! It has come about because men like our President, Mr. Eugene P. Forrestel, and Mr. Bob Martin, cattle salesman for the Buffalo Producers and Beef Cattle Supervisor for Empire, Robert E. Rector and our own Empire Managers have been tireless in their efforts to promote beef cattle. This sort of enthusiasm coupled with a Cornell department headed by Professor John I. Miller and a beef cattle Extension specialist, Professor Myron D. Lacy, both willing and able to give advice, run tests and feeding trials, and put on "short courses" to educate prospective beef cattle enthusiasts, has certainly produced results.

When I worked for Swift & Company in the Chicago Union Stockyards, I went to the top of the Exchange Building one day! On the roof were several signs telling of the largest receipts of livestock on a single day. If memory serves me correctly, the largest run of cattle on a single day was 49,128 head; sheep and lambs was 71,792 head; and hogs was 122,740 head. These numbers never fail to astound me, or the fact that the yards consist of thousands of livestock pens to hold the stock that once came entirely by railroad to the sidings that could "spot" 350 freight cars with 725 unloading chutes. We do not have facilities in the Northeast to handle such huge volume. We do have native livestock and real marketing needs. For a long time too little emphasis was placed on the selling values of the by-products of the dairy industry -- the cows, the bulls, and the calves. However, patient as they are, farmers gradually grew tired of getting little or nothing for their livestock that went for slaughter, and in time insisted that their farm organizations do something. That was the beginning of progress in marketing livestock cooperatively in the Northeast. With it came some problems. I have listed them under three headings: 1. Institutional, 2. General, 3. Operations.

I. Institutional Problems

- Financing of fixed assets, immediate and future.

- Financing of operating capital needs.

- Practical system of accounting, including proper records of allocation of patrons equities.

- Proper Licensing and Bonding.

Maintenance of adequate Insurance Coverages.
Depreciation schedules that minimize tax liabilities.
Personnel sources for manager training.

II. General Public

Relations with Sponsors.
Relations with Advisory Committees.
Relations with Federal and State Departments of Agriculture.
Relations with County Agents, Extension Specialists, Colleges, etc.
General responsibility for educating the public constantly on badly misunderstood cooperative functions, not the least of which is the mistaken belief that cooperatives avoid payment of all taxes, not only Federal Income Taxes. We have had specific examples of attitude change by meat packers when we informed them of the amount of tax liability we have, and the limit by law of dividends that can be paid for use of Capital Stock monies.

III. Operating Problems of a Market Manager

Maintenance of an adequate part time labor force.
Lack of truckers and/or hostility of truckers subsidized by Competitors.
Seasonal pattern of receipts.
Effect of holidays, both national and Jewish, and weather, on receipts and general unknown quantity (and quality) of consignments.
Log jam of arrivals on sale day at peak hours.
Increased costs of various State and Federal taxes, such as unemployment insurance, sometimes not borne by competitors.
Consignors who demand appraisals on the farm and then sell to someone else to "save commission."
Competitors who manipulate weights, prices, and fictitious "house buying" to establish high market reports.
Handling of buyers when Empire steps in to protect a market because buyers are unable or unwilling to pay going market prices.
Handling of complaints from consignors of "bucket" calves and cattle whose weights were established at home by using a tape.
Consignor who feels he owes nothing for services rendered when he "bids in" an animal.
Control of character who will "milk out a quarter" of a sound cow to influence a lower price when animal is checked in the ring.
Removing of manure, cleaning and complete disinfecting of premises between each sale as required by law.
Packer buying stations in same town who buys direct, charges no commission, and professes to pay as much as at your auction.
Sufficient Buying Power.
Sufficient Receipts.
Collect all monies owed.
Control Credit terms.

In order to produce milk, cows must freshen. In so doing a calf is born. Some are retained for replacement stock. Many more are sold for slaughter. As cows become unprofitable as milk producers, either through lowered milk output, age, inability to breed, or physical impairment, they are sold as meat animals. Empire's function is to provide facilities where such cows and calves and other meat animals can be sold to the processors of meat

animals at going market prices. At present, the auction method of marketing such animals is employed by Empire as the most feasible way to accomplish our objectives, which are:

ADVISORY COMMITTEES. Each market has an advisory committee made up of farmers in the area of the market. These men are the connecting link between the local market and the patrons. They are kept informed on the condition of the business, and their recommendations and suggestions are carefully considered.

SELL BY WEIGHT. We believe a lot of guesswork is eliminated when animals are carefully weighed on periodically tested scales, as compared to selling by the head.

NO DIRECT BUYING. All livestock sold through Empire markets is consigned. We do not speculate, nor do we have to buy to make a sale. We believe our job is to return every penny to owners of livestock, and for this service a small service charge is retained. This is our only income.

HUMANE TREATMENT OF ANIMALS. Each employee is charged with the responsibility of handling all animals carefully and kindly. We do not tolerate rough tactics for two reasons: beaten, bruised stock have lower selling values, and it is unnecessary.

CLEAN, SANITARY PREMISES. Each Empire market is cleaned and disinfected weekly. The New York State Department of Agriculture requires it. Human decency demands it. Germs cannot flourish on clean and disinfected floors and walls.

REPLACEMENT CATTLE. Such cattle are segregated from slaughter stock. A competent veterinarian or employee at each market examines each animal. His findings are reported to the ring honestly and accurately. All State regulations are enforced.

NO FAVORITISM. Empire strives constantly to sell animals on merit only. Under our system, ownership of animals is unknown at time of selling, which makes it impossible to favor any one person over another. Buyers all have the same opportunity -- high bidder at auction gets the stock.

PROMPT PAYMENT. All buyers are required to settle accounts promptly. Although we are bonded and licensed by the State, we feel a definite obligation to the farmers whose money is invested in Empire to safeguard same. Empire pays the consignors out of Empire funds, which are collections of the money bid by buyers for stock. Although the check is written by Empire to a consignor, it also shows the names of the purchasers of his animals, weight and price bid.

FINAL DISPOSITION OF LIVESTOCK SOLD. Empire tries to encourage the kind of buying power that pays the full going market price on livestock offered. We do not believe that such livestock realizes full value to consignors if handled several times before it finally reaches the slaughterer.

EDUCATION AND RESEARCH. We are always trying to find improved ways of marketing livestock. We operate a lamb pool, a hog pool, a livestock show, and poultry auctions for this program. We believe it to be our duty to caution owners of livestock against practices that will cause buyers to underbid. We have called attention to the inadvisability of "filling" stock. Normal weighing conditions will always command better prices than "full" animals.

MARKET INFORMATION. We believe in the rapid dissemination of current information on animal values. We do this through local radio and newspaper reports and the statewide "Rural Radio Network." Empire prices by live grade in terms of worth per pound can be compared with live and dressed quotations at other markets. We believe this helps a person to decide whether or not to sell an animal at a given time. Mainly through our efforts, the State of New York has at last inaugurated a livestock market reporting system.

DEPENDABLE AND AVAILABLE MARKETS. Empire firmly believes that the market which benefits farmers most is the one that offers good buyers a steady supply of livestock each week. In this connection, Empire has joined the Buffalo Producers to provide better marketing outlets for New York State produced beef type cattle. We have placed C. R. Martin, "Bob" Martin, their stellar cattle salesman, in charge of our beef cattle operations. An outgrowth of this move was the formation of the New York Beef Cattlemen's Association. These 400 members now have the combined services of Empire and the Buffalo Producers to aid them in the procuring and marketing of their steers and heifers.

Livestock marketing is a realistic business. There is no perfect system. There is no yardstick to measure an animal's worth exactly. Too many factors are present. Overall supplies, dressed market conditions, by-product values, labor costs, distribution costs, holidays, deer season, weather, and other conditions all have to be considered. We favor the auction method for interior markets because it permits the owners of one or two animals to assemble with his neighbors on the same day each week enough livestock to make it worth a buyer's time and expense to try to buy same. When several buyers bid simultaneously on an animal in the ring, each is translating his interpretation of the foregoing factors into a relative value for that animal on that day. Empire tries to, and does get enough livestock consigned and enough buyers in attendance to make it possible for each to deal fairly and squarely with the other. Both must make a profit in order to exist -- neither can long exist at the expense of the other. Slaughter houses can't operate without livestock, neither can farmers afford to raise livestock without buyers to take the finished product. Empire tries to be the balance wheel between the seller and the buyer. Empire firmly believes that the market which benefits farmers most is the one that offers good buyers a steady supply of livestock each week.

Whether we like it or not, the cattle dealer handles the bulk of the cattle business in this State, and will until such time as farmers can get from someone else credit and guarantees on cows. They get neither from Empire, so -- if the farmer does most of his business with dealer, then Empire must find a way to do business with the dealer.

We must never forget, either, that it is the regular consignments each week from dealers that furnishes the basis of numbers that keeps buying power coming to a market, which, in turn, insures buyers presence each sale day to make possible a good market for the individual farmer who may consign only once or twice each year.

There you have one of the really big problems in developing a successful livestock market in this State. At what point does the dealer accept the fact that your market can be the best outlet for livestock he buys from others? What can be done to speed up the process of convincing him that you are his friend and not the means of putting him out of business? He is doubly suspicious of you, because you are a farmer owned cooperative. He doesn't really know why, but since he buys from and sells to farmers he suspects that he will be cutting his own throat if he brings his business to you, instead of your competitor who has not openly announced that his business is farmer owned and farmer controlled. He doesn't believe you if you tell him that he renders a service in trucking, financing, and convenience when he accomodates those farmers who want cash at the farm, and service at the farm, which you can't furnish. He really "blows his top" over your market reports broadcast daily over the statewide Rural Radio Network and other local stations and published in area papers. He says he can't make a dollar anymore -- farmer is too informed! Market Reports are a problem -- in fact a recent front page article in "The Poultryman" is headed "COOPERATIVE LEADERS FEEL PUBLISHING OF PRICES NO LONGER SERVICE" and cites the many reasons why they think local reports should be discontinued, because members use the information to sell at home, etc. Bob Rector and I were told by the manager of the big New Holland, Pa., livestock auction that they put out NO PRICE QUOTES, because they wanted the business in the auction. We later learned that this \$13,000,000 annual volume market has 15 directors, many of whom are dealers who buy livestock on farms and consign regularly. Could it be the real reason why no price reports are issued. I am satisfied in my own mind that prompt and accurate livestock market reports should be furnished by any cooperative livestock market as a service to the industry. Those who use it to sell at home will eventually come your way, and those who consign will be able to check the prices against what they received. It is just as important to keep a consignor as it is to find one.

Long ago Empire learned that slaughter cattle and dairy replacements are definitely interwoven together in the successful operation of a livestock market, in this State other than in the Buffalo Stock Yards. In Empire, over the years, we have tried to fit the two together in a blueprint that started out to be a slaughter-type market only. We have never done the one thing that all of our competitors do, and that is to buy dairy replacements at the farm in order to have them at the market. This method gets other business. Farmers and dealers who consign, instead of sell at the farm, patronize the livestock markets where they believe the most business is done. Empire has not yet found a way to provide an adequate and dependable supply of dairy replacements at Empire locations at any given time. Consequently, we are vulnerable to anything that keep consignments away from us. This may be one or several things, such as cattle dealer resistance to a farmer cooperative, market price manipulation, cutting of commissions, free trucking, special treatment, and more recently, New York State regulations that are not enforced equally

to all concerned. Since the first of January farmers and dealers seem to be reluctant to consign dairy replacements to auction markets. This could be because State appointed "Animal Industry Aides" are now assigned to auctions, and there seems to be a fear that such "policemen" may find something wrong, etc. Rather than take any chance of breaking a new law which most farmers do not yet fully understand, they are electing to sell at the farm to dealers and to auction men who buy at the farm and let them take the risks and do the work necessary to obtain health certificates. It is my personal belief that farmers are not getting full value at the farm, those who buy are paying only beef prices.

The situation of only one-half as many dairy replacements being consigned to Empire Markets is not only serious, but likely to continue unless something unusual happens at Albany. It will continue as long as farmers are unwilling to consign to the auctions, which means as long as "Animal Industry Aides" are stationed at auctions and not at dealers' barns, or at the numerous farm auctions. It will continue as long as dealers are not being stopped from transporting to their own barns without health certificates those cattle they buy on farms. Sure, it is illegal for dealers to do this -- but, who will prove them wrong if stopped and questioned? All they have to do is say they are taking the cattle for immediate slaughter, which is permissible. We have recently told our managers to tell farmers to do the same thing, and that we will get the health certificate for them. It remains to be seen if we can get some business this way. We may never have the kind of dairy replacement business we formerly had. It was largely from dealers, and mostly cows which dealers couldn't sell privately, so they brought them to auctions to try to get other dealers and farmers to buy them. If unsuccessful, they went for beef. We are getting some increase in beef, but not as much as our competitors who have dairy replacements to offer, and thus attract dealers. So you see a problem of staying with a strict policy of never having bought any livestock for speculation.

"The History and Philosophy of Southern States Cooperative," by W. G. Wysor says, "A cooperative which performs only one function, such as distribution, subjects itself to what H. E. Babcock, for many years General Manager of the G.L.F., terms the "Squeeze Play." Its competition narrows the margin taken for the single function performed by the cooperative, and makes up the loss on other functions. Many cooperatives have been wrecked by this procedure of squeezing all the margin out of the service rendered by a one-function organization."

While it is true Empire does not do business on a margin basis, the principle applies to the commissions we do receive on animals we sell for our consignors. We are vulnerable to anything that keeps livestock away from us -- we cannot make it up in other ways, which is another problem.

Our competitors are all able to stay in business on a small commission income because they also buy and sell livestock both in and outside of their markets.

When such operators make up their minds to really "go after" Empire, we are in for trouble -- more so if such areas are dominated by dealer control

of the farmers' dairy cattle. That is the real reason why Bullville and West Winfield do not do as well as our other markets. It seems to me that both of these markets do a very good job of keeping price levels where they belong for an entire area, which, conceivably, helps farmers -- many of whom belong to our sponsoring organizations, but do not patronize Empire. In recent years other auctions tried periodically to get business back by wooing dealers and truckers with special rates and discounts, etc. Each time they do this our receipts are affected. Empire will always be vulnerable to this kind of competition, because we are dependent entirely on commission that is limited in amount instead of elastic margins that come from buying from a farmer at the lowest possible price and selling to the packer at the highest possible price. This would not be the best way to serve the farmers who own Empire. It would be a real problem to treat everyone the same.

I have always maintained that livestock marketing is a tough job, even when you have control of numbers and price. We have no control of numbers and price, because we never own any livestock. I have already referred to Mr. Wysor's "History and Philosophy of Southern States Cooperative" -- here is his statement in the section labeled MARKETING: "After careful study and some experience in marketing the directors are convinced marketing is a tough job -- certainly a more difficult field in which to achieve success than purchasing."

This brings me to a point in this report where I think we should look at Empire and the service it renders. Admittedly, we are doing a good job of marketing slaughter livestock in those areas where folks will entrust their livestock to us for that purpose. In other areas we go through the motions of marketing dairy replacements, and do a fair job of it -- at least we identify the cow if not the consignor, and will not misrepresent the animal, which is more than most other auctions can say. We are not well-known and respected because of our dairy replacement operations. We take a back-seat to no one in the selling of dairy type cows, bulls, heifers and calves for slaughter. We are miles ahead of any other auction market in the State on the selling of lambs, and are a fair distance in front when it comes to the marketing of steers and hogs. No one else even tries to operate poultry auctions, so we have the field to ourselves. Yet, we hardly touch the biggest field of all -- Dairy Replacement. Why? Because the handling of dairy replacements takes place largely outside of auction markets, and largely on credit.

Let me give you the best example of any I could possibly think of -- our actual experience in trying to establish a reputable Dairy Replacement sale at our newest stockyards last year. Let's go back to the map for a minute -- here is Bullville, in Orange County and here is Gouverneur, in St. Lawrence County, both are Empire Markets. Both have elected Advisory Committees of sound and respected farmers. We informed both committees of a request we had received from Dean William I. Myers, Cornell's famous head of the College of Agriculture, to consider the holding of Dairy Replacement sales at our Orange County location when built, under conditions where standards and ethics would be on a somewhat higher plane than that generally observed at regular licensed livestock commission auctions where the CAVEAT EMPTOR (BUYER BEWARE) system seemed to exist. Another long time friend of Empire, Thomas E. Milliman,

had been urging us to insist on the identification of the consignor of each animal when sold. Please keep in mind that this was last year and before any State regulations on the movement of dairy cattle were promulgated; anything at all was permissible as long as the transaction was within the State. It looked like a natural -- a farmer owned cooperative livestock market in the North Country to assemble the dairy cows for shipment 350 miles to another unit of the same farmer owned cooperative where they could be offered to farmers in an area only 75 miles from New York City where milk prices historically were the best. We borrowed the services of a Dairy Specialist to ride with our men in the North Country to stimulate consignments. Our Bullville Advisory Committee had laid down some very strict requirements as follows for special Dairy Replacement Sales on days other than the day of slaughter auctions:

1. Consignor to be identified by public announcement.
2. Cows to be bloodtested and TB tested and found clean within 30 days of sale date.
3. Cows to be vaccinated for shipping fever at least five days before sale date.
4. Cows to be examined by a licensed veterinarian on Empire's premises on sale day, and results of his examination announced.
5. Cattle consigned by individual northern New York farmers to be eligible to meet conditions for entry into New Jersey.

It took a lot of time and effort but we finally persuaded enough farmers to get cattle blood tested, etc. We proceeded to have catalogues printed, which took some doing, because Marsh Stratton, our Gouverneur Manager, and John Sipher, his right hand man, had a difficult time getting the information because of time required for bloodtests. Also, as is always the case, competition was not asleep. Once it became known who was consigning, some attractive offers were made at the farm by area cattle dealers who certainly did not want to see the venture succeed. A few succumbed to the offers and the catalogue, when printed, had them listed, so we had to admit publicly that they had been sold at home. Our first sale was only moderately successful even though several members of our Advisory Committee came with their cattle and told publicly what folks wanted to know about their cattle. Cliff Lloyd, our Bullville Manager, worked tirelessly night and day to get the buyers to come. Naturally, the area cattle dealers were not too happy to see this venture succeed, so they stayed away or sat on their hands. We had big crowds, and most folks agree the cattle brought all they were worth. However, North Country consignors were not impressed, mainly because of the inflated market at home, and because of some outspoken criticisms of individuals whose cows didn't come up to the buyers so-called expectations -- we experienced a gradual dropping off in consignments at the sales we held under these conditions until the last one scheduled for November was a complete flop. Only 14 cattle showed for that sale, and buyers who had come long distances in response to the mailing list were not only disappointed but visibly angered by receiving notice of a sale and not finding any receipts. Therein lies the real problem, how to conduct a dairy replacement sale of quality cattle when you have no control of quality or numbers -- I am sure it is obvious to you as it was to us -- we could have solved this one easily by going to the St. Lawrence County farms,

selecting what we wanted, buying it, advertising it, and gambling on the venture to make money. Who do we serve under this method? How do we treat everyone alike? Since we do not buy to make a sale, we have discontinued the sales under the conditions. Dealers in Orange County now as always ride the roads in the North Country, select, buy, transport to Orange County, sell, extend credit, and guarantee. It is reported that the margin involved is \$100. We couldn't satisfy the farmers on either end when our take was a mere 5% of selling value. How would you try it? Remember, you are a cooperative, working for farmers!

In my opinion here is where the Extension Service could do a real job of education -- some of my County Agent friends and leaders have gotten annoyed with me for advocating this and have accused me of wanting them to do Empire's work. I submit that if it is good for farmers and will help improve their income, they should be told, and if anyone else will try to help farmers as much as Empire has then tell farmers who they are. I heard a G.L.F. Sales Specialist tell their assembled District Managers last week that the way to emphasize "G.L.F. Quality" was to "WAKE THE TOWN AND TELL THE PEOPLE." I think the same technique is needed on this whole field of Dairy Replacements -- Empire can't do it alone, it is too big a job.

I, personally, am now a firm believer that entire dairies ought to be sold on the farm, and not moved to an auction market. Let's say to anyone, that we will sell your livestock for you any place you want it sold -- heretofore, we have made it easy for others because our policy has been to sell only at our markets. It not only means added income for Empire, but added publicity, and both are needed.

We have put into operation this year a service of selling livestock and machinery on the farm for those people who are "selling out." The general practice is for such people to sell out to professionals who then conduct a farm sale and thus gamble on the outcome. Our big problem in this field is to convince such people that Empire can get more net dollars for them, even after paying us a commission. Most folks still think that cash in hand from the highest bidder is safer than gambling on the outcome of a well managed and well advertised farm sale. With a little thought they would arrive at the obvious conclusion -- returns will always be as good and usually better because the fellow who buys outright has to figure a margin from the very same people who eventually buy at the sale he holds. We are getting experience, and have a good man, Charles Koenig, heading up this special activity. Our big problem here is to change a custom, and thereby get folks to use our action service instead of selling outright. How would you do this?

There has been considerable progress in marketing livestock cooperatively in the Northeast because an organization, Empire Livestock Marketing Cooperative, came into being for that specific purpose. I have watched it grow, and, like all parents, have experienced anxious moments for its welfare. I am prejudiced -- I was its first employee. It is virile, though, and rolls with the punch.

Visualize, if you will, a business trying to expand under a limited commission income (not margins). When the major product, cows, not only dropped in price drastically during the shortest period in history, the commission drop was further accelerated because farmers refused to sell their cows. You don't change your investment in buildings, manpower, and payroll taxes that fast. We didn't have hogs to offset it, either when hogs were selling so high. We have been through several years of anything but normal times. This is quite an experience for any youngster. During this time we have never compromised our original purpose: to develop a marketing system that would set the example for others, where the producer of livestock could count on receiving the best possible market price from good buyers for the kind and quality of livestock he had to sell. We never attempted to "save the world." We are firm believers in competition and we want as many different buyers as we can get to bid on the stock. We have refused to give an unfair advantage to any buyer or seller at any time and are proud of our reputation of -- "Ask your neighbor about Empire. It's a good place to do business." Sure we have problems, lots of them. Who hasn't?

In conclusion I will again refer to "Dun's Review." In my opening statement I referred to an editorial comment from its June, 1956 issue. Here is another comment from those editors:

"It is possible to measure with varying degrees of accuracy the tangible output of a worker within an organization, but it is a mistake to think that this equals his value to the company. His influence on others may far outweigh his own efforts toward meeting production goals. Thinking of the individual only in terms of his immediate contribution disregards his potential entirely... the greatest single asset of any concern lies in the potential of the people who operate it...successful men recognize that no man can be strong in all things. They will seek out and develop the strength of others and rely on the combined contributions of a well-knit organization. If profits represent the return on the financial investment, then the total assets might be considered the return on the human investment. The material assets are only a partial reflection of the power of people. It is this power that determines more than anything else the future of a business."

I have quoted the editors of "Dun's Review" at some length because in my judgment they are so right -- the number one problem encountered in the development of a Northeastern Livestock Market was and is to find, hire, and hold competent people. We have been fortunate so far!

HOW WE ARE APPROACHING THE MARKETING PROBLEM IN VERMONT 1/

It is only fair to tell you that my remarks will be largely in the form of a presentation of the several problems in marketing livestock that we have in our State. We are looking for the proper avenues of approach to these problems.

Sometimes it is easy to become complacent with ourselves. Not too long ago a prominent Agriculturalist from the plains of Texas was visiting Vermont. He apparently was quite impressed with our green hills and he remarked, "You Vermonters are tremendously efficient, the way you have shoved the land together so you can use both sides of it!"

We don't feel we are quite so efficient when it comes to marketing our livestock.

The sale of livestock in our State accounts roughly for about 10% of the farm income for all farm products. Largely, this results from the sale of cattle and calves, the majority of which are of dairy breeding. This volume certainly justifies some serious study on marketing procedures.

Webster made a study of the methods of marketing Vermont cattle and published the results in 1953. He found that there were several problems. Most of his observations apply to the other types of meat animals as well.

The problems were, and they still exist:

1. Inadequate published livestock quotations by impartial public agencies.
2. Lack of knowledge on the part of the farmer as to weight and grade.
3. Problems involving commission sales such as maintaining a fair price, maintaining sufficient numbers to attract buyers and give sellers confidence, paying for consigned animals and collecting for those sold, and maintaining sanitary conditions at the sales.

Let's look a little more closely at each problem. At the present time nearly 50% of the cattle sold in Vermont are sold to dealers who buy by the head and pick up the animals at the farm. Without an authentic source of information on current prices the farmer is at a real disadvantage. In most cases he does a good bit of guessing when he sets his price.

Getting a better coverage of price quotations on a liveweight and grade basis in Vermont daily newspapers and broadcasts over radio stations would seem to be a helpful approach.

1/ Presented by Donald J. Balch, Assistant Animal Husbandman, University of Vermont, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

The second problem of making the producer aware of weight and grade it would seem, could be helped by emphasis on the importance of these items at meetings and by county agents using dollars and cents language. After all, if a difference of one or two grades makes a difference of 2 to 7 cents per pound or on a 1,000 pound animal a difference of \$20 to \$70, the point should be well received. Demonstrations on weighing, grading and selection seem to hold promise of improving this situation.

With regard to the commission sales which are becoming of more and more importance, one of the inadequacies that is faced is the far too low bonding requirement. This situation sets up a possibility of a few unscrupulous buyers being able to upset normal channels of trade.

In addition to overcoming this handicap, the practice of weighing all animals sold at the commission sales would greatly facilitate obtaining accurate reports. If a reporter from the Market News Service or the State Department of Agriculture could be present at the major sales to check prices and grades it would also be of benefit.

Although our numbers of cattle of strictly beef breeding are relatively small, it is important to those people who raise them to get a fair return. It is here where another difficulty is encountered. Our beef cattle herds are small and widely scattered over the State. It is therefore difficult to have enough slaughter cattle in any one place at any one time to attract buyers who are willing to pay for the quality of beef being offered. There is still a tendency to think of Vermont raised beef as cull dairy cow stock.

I am not sure we have the answer to this problem at all. Maybe before the discussion this morning is over, some light will be shed on the subject.

Now, what about our sheep and lambs? Most of our lambs are sold directly to livestock dealers or are sold in dressed carcass form locally. Here, again we are trying to encourage a better understanding of grade and quality and to encourage the small producer to explore the possibilities of local markets which in many instances will net a greater return.

In addition we have made a start toward more organization of the sheep and wool growers by stimulating the interest of county agents as well as growers through training schools and shearing schools. One county has organized an association and we hope others will follow suit because we are convinced that many problems can best be solved within more or less local groups. Since our sheep are practically all raised on a supplementary basis the small grower benefits from such an organization, through the pooling of wool for example.

At the present time I understand there is a regional project underway studying the livestock marketing situation known as NE M-7.

I think we need more research of this kind to help attack the problems.

We feel that we have a long way to go on all of our livestock work and certainly marketing is one of the most important phases. We think that the situation can be helped in our State by:

1. More and better information on prices of livestock made available to the farmer.
2. A better understanding of the true value of the animal for sale by the producer.
3. More encouragement for the producer to explore market possibilities locally and to take advantage of them when the situation warrants it.
4. The encouragement for more organization of the livestock segments in the State.
5. More research on marketing problems and more educational aids to the farmers in the form of articles, brieflets, TV shows and radio tapes.

In concluding my remarks, let me say that I am sure I have not contributed any startling information but I am very glad to have the opportunity to be here because our general livestock program in Vermont is just beginning to grow, I feel, and I know I have and will gather some more very useful information from this conference.

HOW WE ARE APPROACHING THE MARKETING PROBLEM IN NORTH CAROLINA ^{1/}

The most effective approach to livestock marketing work in North Carolina has been the cooperation of all livestock production and marketing specialists and county agents in carrying out integrated programs. We hesitate to draw a fine line between production and marketing or educational and service work. Instead, the programs are initiated by the individual departments, then planned and carried out cooperatively.

The approach by extension marketing personnel associated with livestock marketing in North Carolina is essentially a facilities and structure approach. It is felt that by improving the marketing facilities, the benefits would be realized more readily by the entire livestock industry, while at the same time many of the problems encountered by the individual farmer will be eliminated through the added marketing facilities. This is also accomplished by improving the methods of handling and buying or pricing of livestock.

We have an informal livestock marketing committee consisting of members of the Agriculture Economics and Animal Industry Departments and the Division of Markets, N.C.D.A. This committee usually meets twice a year to appraise the results of our marketing program and to coordinate the work on future projects. An attempt is made to isolate and define specific problems that need attention, and members of the committee are assigned certain responsibilities as to the action to be taken. This action involves working through the appropriate committees of the various associations within the industry.

In addition to the various pure bred associations, we have the Auction Operators Association, Hog Buyers Association, Meat Packers Association, and recently have formed the N. C. Cattlemen's Association. Each of these associations has greatly facilitated the carrying out of our various marketing projects. Prior to the incorporation of the Cattlemen's Association, we worked through informal committees of producers, agents, and market operators to effect the regulation and operation of such projects as feeder calf sales and wool pools. These committees now operate more effectively under the Cattlemen's Association.

Many of the counties have livestock production and marketing associations that assist with the livestock programs on a local basis. These county associations, in cooperation with local county agents, sponsor livestock schools, grading demonstrations, feeder calf sales, fat cattle sales, graded hog sales, lamb and wool pools, and other educational and functional programs. We feel that the county associations stimulate interest among local producers and market operators and serve as an excellent means for carrying out a livestock marketing program.

^{1/} Presented by Guy R. Cassell, Livestock Marketing Specialist, North Carolina State College, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

I have mentioned the various associations and the manner in which we cooperate with them in order to describe the framework of our live-stock program. By working with producer groups, market operators and meat packers, we are able to gain a better understanding of the problem encountered by each group, and in turn, get them to cooperate on problems of mutual interest. It is also important that each group understand the problems of other groups within the industry.

Our marketing program has been developed on a long range basis. The approach outlined in our marketing program is developed in two broad areas:

1. General education work in marketing. This involves teaching general marketing principles which can be applied by any individual, group of individuals, or marketing firms. Basically, it would consist of explaining how our economic system works and how our agricultural marketing system operates in our general economy. It can be presented as background material needed to solve a problem in the area, as part of other activities, or as a separate program.
2. Group or individual assistance in marketing, problem-solving. This involves teaching and applying the principles of marketing economics to particular problems of groups or individuals. It requires an analysis of the situation to point out the specific causes of the problem, to specify the alternative solutions, and to indicate the consequences of each alternative. When all of the people involved fully understand a problem, the available alternatives and the consequences of alternatives, then they are in a position to make the right decisions. A follow-up phase of assistance will be necessary in most cases. It should be a part of the usual educational marketing procedure.

This procedure can be applied to problems at the farm level, or at any point in the marketing system. Its scope includes marketing firms or groups of firms, individuals or groups of individuals.

The latest development in livestock marketing in North Carolina is the addition of personnel at local level to concentrate their efforts on marketing. We feel that our present framework for carrying on a marketing program is sound; however, our greatest needs are to obtain competent personnel trained in marketing and to train the present county staffs.

MARKET-HOG POOL 1/

A Marketing System Designed to Aid in the Promotion of
The Meat-Type Hog Program

Introduction

As a result of the severe decline in hog prices during the latter months of 1955 and early 1956, many swine producers in New York State voiced considerable interest in the development of a marketing system for hogs based on grading standards which would recognize and compensate for quality differences. It was not just the desire of the producers to establish a different market as there were several good markets already in operation. Grade standards based on meatiness as well as carcass length and back fat thickness were considered essential to the program. The question that confronted the producers as well as the extension service was how to establish a marketing system whereby the market hogs that were being produced could be segregated into groups according to grade and quality in order that the hogs which produced the most desirable or No. 1 carcasses would bring a price commensurate with the quality and the desirability of the product which they produced. Likewise, it was felt that those hogs that were over-fat and produced the least desirable or No. 3 carcasses should be penalized.

Developing a Market-Hog Pool

The first step in establishing such a marketing system was to get the cooperation of a reputable and reliable marketing agency and packing company. A successful lamb marketing pool has been in operation in one New York county for the past ten years and much of the valuable information and experience gained during its operation was used in setting up the market-hog pool. It was felt that the basic principles concerned in the operation of the lamb pool would also apply to a hog pool. At the lamb pool the lambs are individually graded and then sold on the basis of this grade and weight to one packer. Thus the price paid for the lambs is in accordance with the desirability and quality of the carcasses which they produce. This system of marketing has definitely reflected the differences in value of the various lambs; and as a result the producers who have consigned the higher-grading lambs have been paid a price commensurate with the quality of their lambs rather than taking the average price as would have been the case if the lambs had not been graded. Experience gained in the operation of the lamb pool has also definitely shown that the packer needs to be of sufficient size so that he can handle the volume of lambs marketed through the pool at the going market prices.

After considerable preliminary planning and study, the first market-hog pool ever attempted in New York State was held on April 12, 1956. The

1/ Presented by Ellis A. Pierce, Assistant Professor of Animal Husbandry, Cornell University, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

pool was conducted as an educational and demonstration type program and it was an attempt to establish a sound and fair system of hog marketing which would provide an incentive for the production of meat-type hogs by insuring a pricing structure based on the quality and desirability of their carcasses.

Tobin Packing Company of Rochester, New York, who operate the largest hog killing plant in the East, was contacted relative to the establishment of the market-hog pool and to purchasing the hogs consigned to the pool. This company agreed to purchase the hogs from the market-hog pool and also to slaughter and process the hogs by separate lots so that complete carcass data could be obtained for each grade.

The Empire Livestock Marketing Cooperative, whose Caledonia stockyards handle the largest amount of consigned livestock of all kinds in the State and whose seven stockyards handle approximately 20% of all the livestock that is sold annually through the sixty-three licensed livestock commission auctions in New York State, was also very interested in the program and they agreed to provide the marketing facilities and to handle the details of marketing the hogs. The extension service cooperated by supplying and disseminating the educational information regarding the market-hog pool. This consisted of summarizing the carcass measurement and yield information obtained from all hogs marketed through the pool and making it available to the consignors, the county agricultural agents, and all other people interested in the program. The extension service also supplied information concerning the operation of the pool and suggestions for educational programs designed to improve the quality of the market hogs produced in New York State.

Establishing Price Differentials

An attractive price differential between grades creates a strong incentive on the part of the producers to produce desirable meat-type hogs. It was felt that the prices paid for the hogs marketed through the hog pool should be based on the Chicago market for the day of the pool since practically all producers are familiar with this market. The upper bracket of the price range quoted for the majority of the No. 1 to 3 hogs sold on the Chicago market the day of the pool was used as the base price. The freight rate of 90¢/cwt. and a premium of 75¢/cwt. was then added to the Chicago quotation in order to establish the price paid for the No. 1 hogs at the market-hog pool. The price paid for the No. 2 hogs was the Chicago quotation plus the freight rate differential. The No. 3 hogs were priced at the Chicago quotation. This pricing structure gave a differential of \$1.65/cwt. between the No. 1 and 3 grades of hogs and was agreed upon in advance by all agencies cooperating in the pool.

At the first pool the grading of the hogs was to be done in accordance with the USDA standards and a representative of the Standardization Branch of the USDA was on hand to do the grading at the first market-hog pool. The hogs were individually graded according to USDA standards and were sold to Tobin Packing Company for the pre-determined prices based on the Chicago market for the day of the pool.

The hogs consigned to the pool were trucked to Tobin Packing Company immediately after the pool and were slaughtered the next day. A very important educational feature of the program was that all consignors and interested people were invited to visit the packing plant after the hogs were slaughtered to see the carcasses produced by the hogs that they consigned. Carcass length and back-fat thickness measurements were made on all carcasses. This information and the carcass yield and cut-out data was summarized and provided to all county agricultural agents in the State. The individual consignors at the market-hog pool were also provided with a complete summary of the results.

The success of any new enterprise depends to a large extent upon how well the various cooperating agencies are satisfied with the results. A marketing program such as described above must work to the mutual advantage of both the producer of the hogs and the packing company which purchases them. The results of the first hog pool were quite satisfactory when evaluated in accordance with these criteria. The satisfaction of Tobin Packing Company was expressed by their willingness to cooperate in future pools. The satisfaction of the consignors was indicated at a subsequent meeting by their interesting and stimulating discussion. The desire of the producers to have a series of hog pools established for the remainder of the year was additional proof of their complete satisfaction and interest.

A second market-hog pool was held on May 31st. Some revisions were made in the grading standards at the second pool. It was felt desirable to place more emphasis on the meatiness of the individual hogs and not rely entirely upon back-fat thickness and carcass length. Grading of the second hog pool was done by two representatives of the Empire Livestock Marketing Cooperative and the extension swine specialist. The complete satisfaction expressed by the marketing agency, the packing company and the swine producers after the second pool indicated a genuine interest and desire of the swine producers in New York State to continue to participate in such a system of marketing. As a result of this interest, a series of pools have been established which will operate for the remainder of the year. One pool will be held during mid-July and another about the middle of August. Subsequent to this time pools will be held every three weeks in order to accommodate the heavier run of hogs during the fall and early winter period.

There are two important features that are being considered in the market-hog pool program. One is the educational information that is being put to immediate use by the swine producers in the area. That this information is being used was indicated by the noticeable increase in quality of hogs consigned to the second pool. The second important feature is the provision of a price differential great enough to provide an incentive for the production of meat-type hogs. It is the hope of all interested parties that the desirability of the No. 1 hogs as measured by their value/cwt. based on primal cuts will continue to increase and show a definite improvement over that of the No. 3 hogs. It is important to remember that the differences in value of the carcasses are very closely related to the accuracy and ability of the grader to grade the live hogs correctly. A grading accuracy of at least 80% is highly desirable for such a market system. This degree of accuracy can be attained by practice and experience.

Results of First Two Market-Hog Pools

A summary of the results of the two hog pools is presented in the following tables. The data presented clearly shows the difference in value between the No. 1 and the No. 3 hogs.

TABLE 1. HOGS CONSIGNED TO MARKET-HOG POOLS

Total hogs consigned to pools	432
Number of hogs graded and shipped to Tobin Packing Co.	369*
Number of consignors at pools	36
Number of counties represented with hogs at pools	11

* Only hogs of acceptable weights and quality were shipped to Tobin Packing Co. Of the total hogs consigned, 59 were not heavy enough to be considered as acceptable market hogs and 4 were rejected because of inferior quality.

TABLE 2. GRADE, YIELD AND PRICE INFORMATION ON THE GRADED HOGS

	G R A D E		
	No. 1	No. 2	No. 3
Number of live hogs	138	131	87
Number of carcasses	158	125	79
Average weight by grade	204	219	239
Average dressing percent by grade	72.59	73.71	74.68
Yield of primal cuts as percentage of live weight*	45.19%	46.22%	44.32%
Value/cwt. live, based on primal cut yields	\$16.13	\$15.55	\$15.28

* Primal cuts include the ham, loin, belly, boston butts, and picnic shoulder. The yields quoted are figured on the basis of short-shanked hams and shoulders and bladeless loins.

THE SPECIALIST'S ROLE IN DEVELOPING
MORE EFFICIENT LIVESTOCK MARKETING FACILITIES ^c 1/

The livestock marketing problems differ greatly from one section to another, but there is one basic problem facing livestock and marketing specialists in most States. This problem has to do with providing satisfactory markets for the small scattered livestock producers in the non-livestock areas.

Extension has already spent much time and effort in attempting to solve this problem. The lamb pools, wool pools, feeder calf sales, etc. are examples of the various markets which extension has assisted in organizing. These markets have assured a fair price for small consignments because large enough numbers were made available for sale to bring in the buyers. Even though the problem has been attacked with great success in some sections, it still remains the most persistent problem for many of us.

These small scattered livestock producers not only offer a marketing problem but also an educational problem as well. These men have been very difficult to contact by the livestock or marketing specialist. Most of them are not very efficient in their operation because of the lack of modern livestock information and the small size of their enterprise.

Some persons have said that these small producers are on their way out and we should not waste our time with them. I do not hold with this philosophy. Many of these non-livestock areas can be developed by supplying a suitable market and education. The change to grassland farming has opened new opportunities for livestock in these areas and one of the basic problems to be solved is the improvement of their marketing facilities.

How can we, as extension specialists, be more efficient in solving these marketing and educational problems. To help answer this I would like to discuss three major points.

1. Analysis of area to determine its future in livestock.
2. Stimulating interest in the
 - a. county extension personnel
 - b. local marketing facilities
 - c. key producers in the area
 - d. the press and radio
3. The organization and the specialist's role in it.

We, as extension specialists, are in the best position to evaluate an area's livestock potential. The kind of livestock and the type of production should be fairly clear in our minds before much time is devoted

1/ Presented by Dwight E. Younkin, Livestock Extension Specialist, The Pennsylvania State University, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

in improving the marketing facilities. It would be foolish to improve the market hog marketing facilities if the feed is not or will not be available to produce market hogs. Whereas, the establishing of a feeder pig sale would be of great value. This, I believe, is our first step in helping the livestock enterprises in the area.

After we have analyzed the area's livestock potential, our next step is to stimulate interest in the project. The county agricultural agents and their assistants in the area need to become interested in improving the situation before we progress further. This often times is not an easy task. County agents in these non-livestock sections are often not livestock minded and have spent much of their time with the more prominent agricultural enterprises in their county. Maybe this is as it should have been, but it is our problem to stimulate an interest in our program. As we all know, interest or lack of interest on the part of the county agent could spell success or failure for the project.

The marketing facilities already available may fit into our program very well. Many are operated by progressive business men who welcome new ideas and will try a lamb pool or some other project. There are others who need to be sold, and we as extension specialists can often times do an effective job of selling. We must try to avoid undue hard feelings from other marketing facilities if possible. This sometimes is difficult and is almost impossible, especially if ill feelings already exist between local markets. If we work with the more respected marketing outlets in an area, I think these problems will be at a minimum.

In most areas there are those men who have been active and are active in their communities. Some of these men have livestock or are interested in livestock production. Here again we as specialists can explain and stimulate interest in our program. We need these fellows on our side. If we can convince one of these men, we have already convinced many more.

The press and radio also deserve our attention in selling the marketing program. This publicity never fails to stimulate interest in some people who are overlooked because nobody knew that they may be interested.

The third major point I would like to discuss is the organization for the marketing project. From past experiences, especially in the non-livestock areas, the cooperative pool type organization has proved most successful. In some cases, an organization may not be absolutely necessary to get the job done, but in most cases an organization is highly desirable. Often times rather large areas must be organized in order to insure a sufficient number of animals to make a market succeed. The larger the area the more liaison work needs to be done by the specialist. At the beginning this will require a great deal of time, but after the organization begins to function the officers of the organization should do this work.

This brings us to the question of the role of the specialist in the organization. This is hard to define, but generally the specialist should help to create and assist the organization, yet not to become

responsible for its continuance. We have done our job when we recognized the problem and helped create a solution for it. It is often too easy for the producers to tie us down with the detail work of manager, secretary, or other time-consuming job causing other phases of our work to suffer.

Acting as graders at the market can be very educational. We as specialists can often times help at the grading table or chute. This is an excellent place to contact the producer when he is most receptive. His pocketbook feels the shock directly when his livestock is cut into a cheaper grade. The questions of "why?" and "how?" are often asked during the grading operation. We can establish a contact and substantially help the man who is interested in doing a better job. This, I believe, is the most valuable education we can do which is a direct result of the service rendered by doing the grading.

To sum up my remarks, I believe small scattered livestock producers in the non-livestock areas remain our greatest problem in marketing. The livestock and marketing specialist must evaluate the livestock potential of the area, create and stimulate interest in the marketing project, but not become responsible for the operation of the organization. The specialist's job, as far as the organization is concerned, should be finished when he has recognized the problems and assisted in solving the problems. The education, which is one of the chief by-products of the improved marketing facility, still remains the job of the specialist and other extension personnel.

PERFORMANCE TESTING 1/

General acceptance of performance and progeny testing as guides for improving beef cattle have been long overdue. We are all familiar with the amazing progress that has been made towards increasing the output per dairy cow and hen as a result of keeping production records. We think of performance testing of beef cattle as a new venture. However, our present concept of the subject and the techniques we are using are the result of long years of research and experience.

Our chief concern back in the twenties and thirties was the "grading up" of our commercial herds. The theme in those days was get ride of the "scrub bull." Extension workers throughout the country waged campaigns for the purpose of replacing bulls of non-descript breeding with purebred beef bulls. Any kind of a purebred bull made a big improvement in those areas where quality was low. Through the widespread use of visual selection of purebred beef cattle, and the use of bulls from these herds to improve the beef qualities of commercial cattle, we have attained a rather high level of beef conformation and uniformity in the nation's herds. At the same time, comparatively little progress has been made in increasing the inherent ability to convert feed into meat more efficiently. Economic pressure requires that we increase the efficiency with which we produce beef, and this means that other yardsticks must be used to supplement visual appraisal of type.

Weight for age selection alone should not be considered as the whole answer but as another very valuable tool, which if used wisely along with our older tools such as selection for beef conformation, good feeding, management, and health practices, will greatly speed up our efforts to produce cattle that are more efficient converters of feed and possess greater utility value. I predict that we will have still more yardsticks in the future to help us further in our search for more efficient animals. The possibilities in the field of carcass evaluation are tremendous.

We must recognize first, that all of the questions with reference to progeny testing have not yet been answered, but we do have sufficient information upon which to build a sound selection program. In every State I have visited, interest in performance testing is evident with progress ranging from the initial exploratory stage all the way to well-developed and operating programs. It is true that there is some variation between the States in the requirements that have been set up for qualifications of animals. Part of this has been due to the diversity of local environmental factors such as climate, soil, pasture and range conditions, customary weaning age, feeding and management practices, etc. However, the basic fundamentals are essentially the same, and adjustment factors have been developed to at least partly compensate for these differences. We should keep in mind that the greatest value of performance testing is to assist the individual cattleman in improving the efficiency of his herd through selection based on performance. Buyers of breeding stock should always consider the conditions under which the animals were produced and developed when appraising their records of performance.

1/ Presented by Charles E. Bell, Jr., Chief, Animal Industry Branch, Federal Extension Service, USDA, Washington 25, D. C., at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

The methods of developing the educational and promotional programs also varies between areas. Some States have conducted bull testing demonstrations long enough to convince producers of the value of the program, and are at the stage where a large number of producers are asking for an organized program. Other States must do a lot of spade work before launching out on an extensive promotional effort. For example, I have in mind several States in which the cattle industry is comprised largely of small breeders who are indifferent toward a testing program. The question in those States has been asked, "How can we get started?" The sound approach under these circumstances is to start with several breeders who are willing to cooperate in getting records on their herds, use their herds as demonstrations and they will help sell the idea to their fellow breeders. We must recognize the difference in situations which exist in the various States. Sometimes, in our enthusiasm, we are prone to assume that everyone is ready to get on the band wagon. It is sobering when we read the analysis of the recent survey regarding management practices which was conducted by the American National Cattlemen's Association among a cross-section of their membership. Forty percent of the cattlemen reported that production tested bulls were not available to them, and 22.7% reported that they would not use production tested bulls even if they were available. This points out the tremendous job we have ahead of us in the educational field.

Let us now discuss the role of the Extension Service in performance testing. Extension's area of work is strictly in the field of voluntary education. It was never designed as an action agency, nor as a relief agency. It's philosophy has always been to help people to help themselves. It is our job as extension workers to inspire and assist more people to take the leadership in developing the best programs to improve their farming practices and standard of living. We have the responsibility for providing the most reliable facts available in order that the farm families may be in a position to make wise decisions. The so-called "Extension programs" are actually programs developed by advisory groups of farm people in consultation with extension workers as best fitting the needs of their respective areas.

We, as extension workers, are very much interested in the development and conduct of a sound performance testing program. We realize that during the initial stages of a new comprehensive program such as this, that there must be a lot of personal service work done to get the program rolling. The setting up of result demonstrations on farms is one of the most effective methods of extension teaching, and we feel justified in spending the time that is necessary with individual producers in the demonstration phase. However, we can foresee a situation developing in the future where the program will expand to the point where the weighing and grading of calves will consume so much of the extension worker's time that he will be neglecting his many other responsibilities. Incidentally, a few States and counties have already arrived at this stage. Five States, including Virginia, Texas, Oklahoma, New Mexico, and South Dakota, have set up the machinery for handling the service phases of the program by organizing State beef cattle improvement associations composed of cattlemen who are performance testing their herds. I was asked to meet with several State extension directors and officials

of the American Beef Cattle Performance Registry Association for the purpose of preparing a statement of policy regarding the cooperation of extension with the national and State performance testing associations. This has been included in the General Rules of the American Beef Cattle Performance Registry Association for the guidance of affiliated State organizations as follows:

"State Associations shall appoint an official superintendent of beef cattle performance testing who may be the State Extension Animal Husbandman or other qualified animal husbandman mutually acceptable to the National Association and the Land Grant College of the State concerned. The State Association shall provide such materials, equipment and clerical assistance as are necessary for the efficient discharge of the responsibilities of the office without unduly interfering with the normal responsibilities of the person designated as Superintendent.

"Duties of the Superintendent shall include:

1. Qualify and appoint official supervisors of performance testing.
2. Receive, approve and forward to the National Association such records as may be designated.
3. In charge of the educational program to disseminate information on performance testing.

"The supervisor's duty is to see that the tests are honestly made and accurately reported. He will supervise the identification and weighing and will record all data and report same to the State Superintendent, who will then submit the necessary data to the National Association for recording and publication."

The development of the program in the States usually goes through the following stages:

Phase I - The foundation is laid by using every available means such as short courses, newspapers, magazines, radio, field days, etc., to acquaint cattle owners with the facts on performance testing and what it would mean to them in their individual operations. Many State colleges and Experiment Stations set up bull feeding trials in order to get records for use in the educational program.

Phase II - Extension workers assist those who have indicated interest in the program in setting up a record system and procedures with their herds.

- Phase III - Demonstration field days are held on the farms of the cooperators in order to give other producers an opportunity to observe results. The purpose of this type activity is to present the facts first hand in order to generate a desire to participate.
- Phase IV - After sufficient participation has been secured in a State, they are ready for the organization of a State Beef Cattle Improvement Association. This type of association is controlled by the cooperating cattlemen and is set up to employ such test supervisors as are needed.
- Phase V - Educational work will be continuous - Records will be analyzed and information from them will be used to further the educational effort. Revisions in the program will probably be made as additional research and testing experience bring to light new information.

PERFORMANCE TESTING AND ITS ROLE IN IMPROVING BEEF CATTLE 1/

Performance testing has come into the picture rapidly in the last few years and is likely to continue to grow. Its usefulness has been and is being demonstrated in several State and local programs. The basic framework for beef cattle improvement based on performance is clear but more research seems necessary in order to properly measure total performance and put it in its proper place in the breeders program. The breeder selects individual whole animals one by one and his problem is to select those with the greatest total breeding value.

Research on beef cattle genetics is relatively new. Our oldest research herds were established about 1930 but the bulk of them have been established in the last ten years. A national beef cattle breeding project has been developed since the Research and Marketing Act of 1946. Regional programs were started under the leadership of Dr. R. T. Clark in the Western Region in 1946, the North Central Region in 1947 and the Southern Region in 1948. Thirty-six States, Hawaii, and the U. S. Department of Agriculture are now cooperating in a national project with about 9,000 breeding cows in research herds. This includes herds established at three cooperative State-USDA stations about 1930 and at five State stations from 1934 to 1942. Thus, for the broad long term objectives dealing with breeding systems answers are incomplete but the data have provided basic information that can be applied to breeding herds in general.

Heritability estimates of certain traits have been reported as follows:

1. Birth weight has usually been high, averaging about .45 and ranging from .11 to 1.00.
2. Weaning weight has averaged about .25 and ranged from a small negative to 1.00. Since this trait is influenced by feed supply as well as the genetics of the calf and the dam it is expected that these estimates would vary widely. One station (Arkansas) found a high correlation between weaning weight and milk production of the dam.
3. Grade at weaning has averaged about .30 and ranged from .0 to .57.
4. Feedlot gain has generally been high averaging about .45 and ranging from .19 to .70.
5. Pasture gains from three estimates average .18 and ranged from .15 to .24.
6. Efficiency from a few estimates ranged from .03 to .75 and averaged .39.

1/ Presented by C. M. Kincaid, Regional Coordinator, S-10, Southern Region Beef Cattle Breeding Program, University of Tennessee, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

7. Slaughter grade ranged from .09 to .58 and averaged .38.

Repeatability of cow performance has usually been in the neighborhood of 40% and indicates that cow selection will improve weaning weight rather rapidly.

Correlations between rate of gain and efficiency, with weight constant, have been high (.7 to .8) and indicate that rate of gain in the feedlot and efficiency are closely related.

The relation between type score and rate of gain has generally been near zero. This indicates that selection for one of these traits will result in little or no change in the other.

Performance in beef cattle is a function of quality and weight for age. Much more information is needed on type, conformation, muscling, tenderness and other things that influence the value per unit of weight. Under present standards type, fatness and age are important factors in the market place. Studies of type or grade scores indicate that experienced graders tend to evaluate individual animals in somewhat the same relative order. While individual animals vary in rank from one time to another the general order is usually somewhat the same. Visual evaluation of animals is worthwhile and the only method available at present for the measurement of quality in the live animal.

From available research results it appears that performance testing should be divided into two phases (1) performance before weaning and (2) performance after weaning.

1. Preweaning performance tests can be obtained on all animals produced in a herd. It will provide the basis for cow selection and culling and can with careful assignment of cows to bulls furnish a means of measuring the breeding value of sires. It is emphasized that sire comparisons with preweaning data are valid only when the bulls each get a fair sample of the cows.
2. Postweaning performance tests seem most useful when contemporaries are handled alike and when the available feed supply is sufficient to meet the free choice requirements of each animal in the group. Final evaluation of postweaning performance should be on the basis of life-time performance to the end of the test period. Performance based entirely on a postweaning test period may be misleading. It often happens that fast gainers on test show very slow gains prior to the start of the test. Available data indicate that under optimum feed conditions steers gain at approximately the same rate from about three to fifteen months of age. If gain before test is retarded, gain on test will be increased accordingly, so that the fastest gainer in a feeding test may rank below several others on the basis of lifetime gain. Selection for rate of gain entirely on postweaning feeding tests could result in selecting sires that had poor milking dams.

The expected progress from selection based on performance testing will depend on a number of factors but it seems reasonable to expect that weaning weight and weight at a year of age can be increased something like 10 and 20 pounds respectively, along with small increases in conformation score. While these expectations are not large, they are worthwhile. Indirect effects resulting from performance records are likely to lead to improved nutrition and management. State and local organizations that take the responsibility for performance testing on the farm will put in the breeders' hands a set of records much more complete and useful than he is likely to obtain on his own initiative.

PERFORMANCE TESTING AND ITS ROLE IN IMPROVING BEEF PRODUCTION^{1/}

Our new beef testing program is gaining recognition in the State of Maine. This is a program that has been needed not only in Maine but all parts of the United States for many, many years. We need only to look at the poultry and dairy industries to see how a program of this type has helped these two industries, not only in production but also quality.

Now to go on to how this program will help the beef industry. For many years we have been selecting our breeding stock and feeder calves by casual observation, based on our personal likes and dislikes. Selection on this basis has not turned out to be right in every case, since each one of us has our own personal feelings about what part of the animal is the most important in the selection of breeding stock. Under Maine's new program we will have the grade and gain of the offspring for permanent records, no more guesswork as before. We should use these records in selecting our replacement heifers and herd sires.

The newly established beef cattle improvement program in Maine is designed to help beef breeders do a better job in producing beef. It calls for the evaluation of individuals in the breeding herd through performance testing. Not only are we going to help the breeder in this part of his program and in better management practices but also help him follow better feeding programs.

Now in reference to the feeding program: Maine can and is producing ample supplies of one of the cheapest cattle feeds, that being grass and roughage. We hope to improve the grass and roughage program in Maine and find the beef cattle that will gain the most on this type of feeding. This calls for periodic weighing and grading of the animals. We are also going to score each individual farmer in the program on his management, feeding, pasture and roughage. This will, we hope, encourage better management.

Performance testing will not make any great change in the actual breeding program. The only difference will be that of measuring production by weight for age and grading of cattle. We do not want to forget the type of the animals and put all our selection on weight alone. If we ever did forget type we would be in trouble. The results would be big, raw boned cattle that the consumer would not want. Our aim should be cattle that will reach the weight of 1,000 pounds to 1,200 pounds with the fastest and cheapest rate of gain.

Production data is reliable only in comparing the producing ability of animals on any one farm where the environment of each animal is the same. Feeding and management vary considerably from farm to farm. So comparing animals from different farms is not too reliable.

^{1/} Presented by John C. Goater, Jr., Extension Livestock Specialist, University of Maine, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

Under the Maine program each animal will be weighed three times. Once at weaning and two weighings as yearlings. The weaning weight will give us the daily gain of the animal from date of birth to time of weighing. This will enable us to find the cows that are producing the fastest gaining calves and the heaviest calves at weaning. The weight at weaning will be adjusted for age of dam and the sex of the calf. The yearling weighings will be in the spring which will give us daily gains the animals have made on a roughage feeding program. The fall weighing of yearlings will give the daily gain these animals make on grass during the summer.

These animals will also be graded three times. The reason for this is that we find whether the grade goes up or down as the animal gets older.

The animals will each get an index number every time it is weighed and graded. The breeder can use these index numbers in comparing each animal in his herd.

The objectives of the program:

- 1st To select the fastest gaining beef animal in the herd.
- 2nd To locate dams and sires that will produce the fastest gaining offspring of desirable type.
- 3rd Locate data that will help improve the roughage and pasture program, management practices and herd improvement.

In closing I would like to say, the end results of cattle breeding and production practices is best seen at the butcher block. The thing all beef men should be striving for is to produce and market more pounds of beef of the quality and grade that appeals to the housewife. She is our most severe critic. We can do this if we handle the testing program so we do not lean too much to either weight or type.

PENNSYLVANIA'S BEEF PERFORMANCE TESTING PROGRAM ^N 1/

Pennsylvania's Beef Performance Testing Program was started in 1955. It was designed primarily for the individual beef breeder to conduct his own testing. As with other testing programs, this one was made to compare the producing ability of animals within a single herd; not between herds, breeds, etc.

To date, no real effort has been made by Extension to promote the program in Pennsylvania. While a number of breeders are actively engaged in the program, they started largely because of their own personal interest. Although the speaker authored the program being followed, most of the ideas were not original with him. Pennsylvania's program is largely a compilation of the programs used by a number of other States. It is still in the mimeograph stage, subject to change as conditions and research show improved methods of measuring the producing ability of beef cattle.

Today, one of the major obstacles to be overcome is the fact that few States are using a uniform program. Many of them differ considerably in the methods used to measure performance.

In our program, three separate tests are used. They are:

1. Weaning Weight
2. Rate of Gain following weaning
3. Eighteen Month Weight

In addition, equal emphasis is placed on type (grade score).

No attempt has been made to record birth weights.

Weaning weights are adjusted to 190 days using adjustment factors developed in South Dakota by Dr. Leslie E. Johnson and Dr. C. A. Dinkel. Adjustments are also made for the sex of the calf and age of the dam. This test is being used by most participating breeders to cull their brood cow herds of inefficient producers.

The Rate of Gain test following weaning is being used by a number of purebred breeders to compare individuals, especially potential herd sires.

Eighteen Month Weights are used by several breeders to select replacement females. The estimate on the heritability of the weight of cattle at this age is about 86%. This test, along with type score and weaning weights, can be an added factor in the breeder's selection and improvement program.

1/ Presented by Thomas B. King, Livestock Extension Specialist, The Pennsylvania State University, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

If Performance Testing is going to grow in the Keystone State, a better job of showing benefits to the breeder must be done. To date, we in Extension have not been able to devote much time to the actual weighing, grading, and processing of data. To become more familiar with the actual procedure and get some first hand information for future use, we have been working closely with two pilot herds. Results have been gratifying. As more information, pictures, etc. are accumulated, we will be better equipped to present the benefits of Performance Testing to Pennsylvania breeders in the future.

Observing the Programs now used by the various States, there is considerable lack of uniformity in the testing procedures. While the objectives are the same, we feel that a discussion of the following factors would be beneficial to our program.

1. Should we recommend that participators record birth weights?
2. Should we calculate adjusted weaning weights or daily rate of gain up to weaning?
3. If adjusted weaning weights are used, what age should be used?
4. Should we make an all-out attempt to organize our beef producers into a State beef improvement association and affiliate with a national organization such as the American Beef Cattle Performance Registry Association?

OHIO SWINE IMPROVEMENT PROGRAM 1/

This educational project was developed by breeders, commercial producers, and others associated in the industry and is carried out through facilities of the Meats Laboratory and the Swine Evaluation Station of the Ohio State University. It is supervised by the Agricultural Extension Service in cooperation with the Ohio Agricultural Experiment Station.

It is a selection program. The main purpose is to aid in selection and recognition of foundation stock from Ohio herds that will improve the efficiency of production and the market value of the great Ohio commercial hog crop. Selection of this foundation stock is made on the basis of records that indicate: (1) absence of inherited defects; (2) prolificacy; (3) nursing ability; (4) rapid growing and gaining ability; (5) efficiency of feed utilization; (6) superior meat-type carcass; and (7) soundness, style, and balance of conformation.

The official governing body is the Swine Improvement Association of Ohio. Since 1948 the program has been on a statewide basis.

	1948 Thru Spring of 1954	Fall 1954, Spring 1955, and Fall 1955*
Litters Nominated	791	598
Litters Qualified Weight for Age	462	434
Litters Certified Ohio Commercial	128	142
Litters Certified Ohio Improved	64	2
Litters Certified Ohio Superior		121

* 134 different breeders representing 10 breeds had litters qualify.

245 litters of the 1956 crop have been nominated to date.

During 1954, Ohio State University constructed the Swine Evaluation Station.

Objectives of the Swine Evaluation Station:

1. Provide 108 pen station where breeders may have two pigs per litter fed under uniform conditions of feeding and management.
2. Determine the feed efficiency, rate of gain, and carcass value of prospective breeding litters through records secured on two pigs per litter.

1/ Presented by W. H. Bruner, Extension Specialist in Animal Science and Marketing, Ohio State University, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

Procedure of Station Participation:

1. Breeder nominates litter within ten days after farrowing on prescribed form and mails to Secretary of the Association along with a \$2.00 fee.
2. Weight standards of 21, 35, or 56 days prescribed by the appropriate breed association apply.
3. Select representative pairs of pigs (barrow and gilt if possible) per litter that have met weight standards. (Breeder, county agent, vocational agriculture teacher or appointee to weigh and make selection.)
4. Pigs entering station must be treated for cholera and accompanied by health certificate. (Inspection of herd by local veterinarian.)
5. Male pigs should be castrated.
6. Breeder delivers pair of pigs to station by or before they are 60 days of age.
7. Entrance fee for a pair of pigs per litter is one pig. The other pig is purchased at $1\frac{1}{2}$ times the market price times the average weight of the two pigs.
8. Pigs self-fed standard ration and started on feed at 63 days of age. Starting and finishing rations carrying approximately $13\frac{1}{2}$ and $15\frac{1}{2}$ crude protein, respectively, are used.
9. Pigs weighed individually at bi-weekly intervals.
10. Test ends as pigs reach 210 pounds in weight.
11. Both pigs are slaughtered at Ohio State University Meats Laboratory and detailed carcass data obtained.

Certification Standards (Certification of record on remaining boars and gilts in litter):

1. Feed standard is 370 pounds of feed or less per 100 pounds gain while on test.
2. Each pig of the pair must average 200 pounds at 180 days.
3. An average primal cut yield of 48 to 49% is certified Ohio Commercial with neither pig cutting less than 47%.
4. An average primal cut yield of 49% and over with neither pig cutting less than 48% is certified Ohio Superior.
5. Certificates are issued by certification committee selected from the membership.

6. Data on certified litters released, periodically, giving breeder, breed, litter index number, rate of gain, feed utilization, and carcass value.

Results to Date

Three crops of pigs representing 311 litters through the Swine Evaluation Station indicate that genuine meat-type hogs have the ability to gain rapidly and efficiently.

A table giving the average performance, grouped according to primal cut yield of live weight, accompanies this report. An estimated pig crop per season of 40,000 head sired by boars out of 1954 fall, 1955 spring, and 1955 fall Certified Superior litters.

A second portion of the Ohio program is one of field participation. The main difference in this program is that the breeder raises the entire litter on his farm. As the pigs reach 210 pounds in weight, he brings a pair from a qualified litter to the Meats Laboratory at Ohio State University to secure carcass cut-out data.

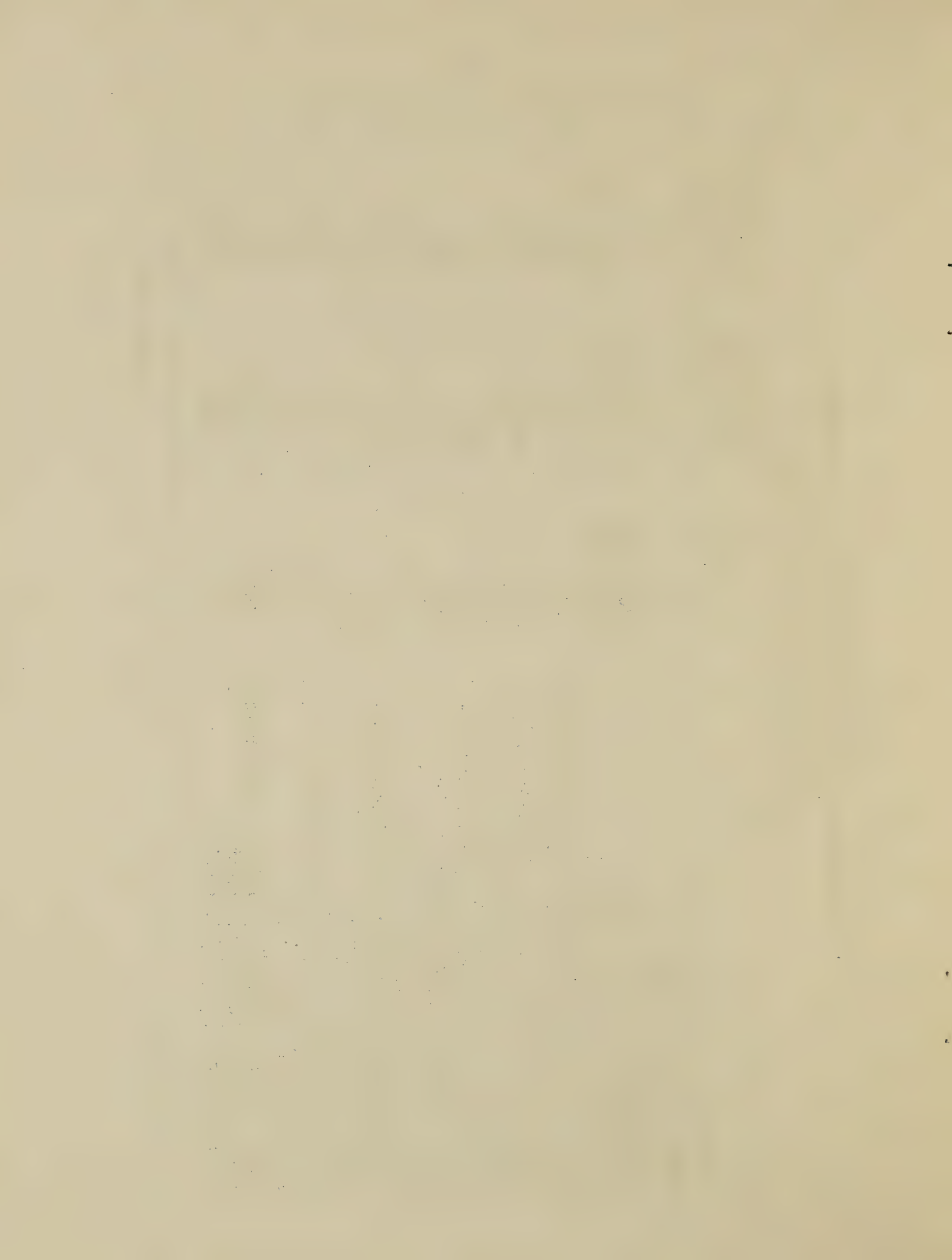
Three-Season Average
Grouped According to Primal Cut Yield of Live Weight
Ohio Swine Evaluation Station
1954 Fall, 1955 Spring, and 1955 Fall
(based on data from two pigs per litter)

	All Pigs (311 pairs)	Certified Superior 49+% (121 pairs)	Less than 47% Non-Certified (36 pairs)
Number of Live Pigs Born	11.2	11.1	11.4
Pigs Raised to Weighing	9.8	9.6	9.8
Litter Weight at 21 Days (lbs.)	110.2 (29)	110.2 (15)	114.0 (5)
Litter Weight at 35 Days (lbs.)	182.5 (256)	187.1 (96)	177.1 (25)
Litter Weight at 56 Days (lbs.)	377.8 (26)	382.4 (10)	366.7 (6)
Weight per Pig at 63 Days (lbs.) (Starting Weight)	40.7	41.6	40.4
Daily Gain per Pig 1st Period (lbs.)	1.56	1.55	1.58
Feed Required per 100# Gain 1st Period (lbs.)	290.5	288.4	296.0
Daily Gain per Pig 2nd Period (lbs.)	1.90	1.86	1.91
Feed Required per 100# Gain 2nd Period (lbs.)	384.8	378.9	404.5
Weight per Pig at End of Test (lbs.)	210.3	210.5	210.5
Age at End of Test Period (Days)	162.9	163.1	162.4
180 Day Adjusted Live Weight (lbs.)	235.2	235.3	236.1
Daily Gain per Pig Complete Test (lbs.)	1.72	1.70	1.73
Feed Required per 100# Gain Complete Test (lbs.)	340.6	336.4	354.2
Adjusted Slaughter Weight (lbs.)	203.7	204.3	204.0
Dressing Percentage	74.45	74.70	74.36
Fat Back Thickness (In.) (3 Measurements)	1.63	1.57	1.76
Carcass Length (In.)	29.92	29.98	29.4
Sq. Inches Loin Eye 10th Rib	3.78	4.10	3.24
% Ham, Loin and Shoulder of Chilled Carcass Weight	50.29	51.97	46.83
% Fat Trim of Adjusted Live Weight	16.36	15.22	18.91
% Primal Cuts of Adjusted Live Weight	48.70	50.00	46.34

() Litters Weighed

May 7, 1956

W. H. Bruner



† PERFORMANCE TESTING OF SWINE 1/

Swine performance work in South Carolina has been in working with the swine breeders in testing litters for meat-type and in the educational work with county agents, agricultural teachers, farmers, packers, and auction market operators.

The first certified meat-type hog work was conducted at Clemson College in the spring of 1955. Prof. E. G. Godbey of the Experiment Station Department conducted the feeding work, and Dr. R. F. Wheeler of the meats department did the carcass testing. The Extension Service contacted the swine breeders and lined up the litters to be tested. This testing work was in cooperation with the swine breed associations and these litters had to meet the P. R. requirements before they were eligible to be tested for meat-type.

Two boar pigs were delivered to Clemson College after weaning (56 days). These pigs were castrated, and treated for cholera and worms. They were put on full feed at 70 days and fed until a final weight of 200 pounds was reached. All pigs were self fed the same ration in individual pens. At the close of the feeding test the hogs were slaughtered and the necessary data secured. The following table gives a summary of the 1955 results.

Pig No.	Litter No.	Days on Feed	Daily Gain (Lbs.)	Feed per 100 lbs. Gain (Lbs.)	Carcass Data		
					Length (In.)	Area Loin (Sq. In.)	Av. Backfat Thickness (In.)
43	129	88	1.75	311.69	29.25	3.89	1.65
44	129	94	1.66	333.33	29.25	3.28	1.85
45	1	80	1.86	322.15	29.00	3.20	1.58
46	1	97	1.63	278.48	29.50	3.04	1.52
47	40	98	1.59	336.54	28.25	3.24	1.41
48	40	90	1.73	294.87	29.25	3.80	1.39
49	30	90	1.64	341.22	28.15	3.05	1.75
50	30	97	1.52	348.98	28.62	3.22	1.51

All of the pigs reached 200 pounds final weight in less than 180 days.

Carcass Requirements for Certification

Minimum Loin Area	3.50 sq. inches
Minimum Length	28.50 inches
Av. Maximum Back Fat Thickness	1.00 - 1.60 inches

1/ Presented by A. L. DuRant, Leader, Livestock Extension Work, Clemson College, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

Another test will be conducted with 1956 spring litters at Clemson this year.

Much educational work is needed on the meat-type hog with the farmers, packers, and auction markets. The type conferences, fat stock shows, and fairs are used as demonstrations to point out the meat-type hogs. Meat-type programs showing the type of hogs and the cuts of meat have been put on over radio and T.V. by the Extension livestock specialists and county agents.

One of the best training schools ever held in the State was the livestock grading school held at Orangeburg, South Carolina on September 7-8, 1955. Mr. John C. Pierce, Chief, Standardization Branch, USDA was in charge of this school. Tom Bell of Kingan & Company and the College and Extension livestock men assisted with this school. The market grades of hogs U. S. No. 1, U. S. No. 2, U. S. No. 3, medium and cull were discussed and hogs representing these grades were selected. A group of hogs were then graded by the persons attending this school. The official live grades were then given. These hogs were slaughtered by Kingan & Company and the carcass grades checked the next day. Sixty-three county and assistant county agents attended this school.

A swine type field day was held at the Greenwood Packing Company, Greenwood, South Carolina on April 4, 1956. A swine grading contest was held for junior (4-H and F.F.A.) and for adult farmers. Half carcasses and cuts from similar grade hogs were displayed and explained. Pastures and feeds for swine were also discussed. Over 200 club members and farmers attended this event. Plans are underway to hold similar field days in other parts of the State.

The packers and market operators are being contacted by the Extension livestock market specialist in regard to grading hogs on meat-type and selling them in groups by type.

PERFORMANCE TESTING AND ITS ROLE IN IMPROVING SHEEP PRODUCTION 1/

In 1941 the Ohio Agricultural Experiment Station, under the leadership of Mr. Bell, initiated the first of a series of experiments designed to study the adaptation of types of sheep and systems of breeding.

Some Results and Discussion of Ohio Research Projects on Type and Adaptation and Systems of Breeding for Market Lamb Production by D. S. Bell and L. E. Kunkle are:

1. The history of Ohio's sheep industry is marked by three distinct eras; each of which has its own particular characteristics.
2. A sheep breeding and wool growing industry of permanence and economic importance can arise only when there is a type or breed which, because of its inherent characteristics, will remain healthy and produce economically under the existing environment. The types of sheep must be adjusted to the climate, topography, feed supply, and the husbandry practices that the environment and the products demand. Lack of this natural adaptation to an environment leads, either, to failure with heavy losses, or, high cost of production in an attempt to modify the environment to suit the animal. Economically, too, a type can fail even in a good environment to which it is adapted, if the products of its husbandry fail to pay the burden of production costs and leave a margin of profit.
3. The third sheep era in Ohio began about the time that World War I came to a close. Costs in sheep production rose until it became impossible to keep Merino sheep for the wool that they would produce. The market lamb came into the sheep raising picture. The Merino wasn't adapted to the production of market lambs because, throughout its entire history, nothing had been demanded of the Merino other than a perfect fleece of wool. Their fertility level was low, their milk capacity was lacking, they grew slowly, and they made low meat returns for the feed that they consumed. The Merino began to decline, and this decline has kept up until the Merino sheep is almost out of the picture.

Central and western Ohio in this era found that it had new problems. Grass and grass utilization was becoming a part of their problem too. Apart from the meadow crop that belongs in the usual four year rotation - and which requires livestock for its conversion into human food - there were increasing acres of grassland. The conservation program added some; and the grain-crop restriction added some more; and now we have the new soil-bank plan aimed at crop restriction.

1/ Presented by Ralph H. Grimshaw, Animal Science Extension Specialist, Ohio State University, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

4. Genetic improvement of the Merino for increased fertility, more abundant milk supply, faster growth rate, easier fattening, and carcass form and yield virtually means a new type sheep.
5. Selection, to be sure, will in time alter the qualities of a breed; but the likelihood of altering efficiency, and carcass form, is virtually out of the question.
6. Ewe Production: The productive value of ewes individually or as a group is determined largely by rate of conception, the number of off-spring born, the survival of progeny and the capacity of the ewe to produce milk required for lamb growth. These factors ultimately are measured collectively in terms of pounds of lamb weaned. This final figure representing pounds of lamb produced is of interest, both from the standpoint of flock performance on the basis of the number of ewes involved and the average individual performance of each ewe that lambs. The two variables that are most likely to be conditioned by chance are those involving the rate of conception and to a large extent survival rate among the progeny.
7. The percent of lambs born to ewes lambing was fairly constant for the Merino flocks irrespective of the sire used, indicating that as an over-all average about one ewe out of each 7 among Merinos will bear twins. The Western crossbred ewes consistently weaned more lambs than the Merino ewes and showed an average lambing rate for the four years of 136.22 percent.
8. The number of lambs weaned is a figure that is influenced by a complex set of interesting and conditioning factors. The survival rate may be and likely is conditioned or affected by such factors as size and vigor of the lamb at birth; the relationship of lamb at birth and mothering disposition of the dam.
9. In terms of making grass-fat lambs, the production record that stands out with bold promise in this phase of study is the 4-year average production record made by the Western ewes bred to mutton-type sires. The Western ewes produced 56.5 percent more pounds of lamb at weaning per ewe lambing in the period from birth to weaning than the pure Merino ewes. This difference is partly due to a faster growth rate of the lambs from the Western ewes, partly to a higher survival rate, and partly to the higher level of fertility among the Western ewes. Boiling this down to its simplest terms, the productive value of a ewe is largely determined by her fertility which promotes numbers born and her milk which causes them to grow.

PART II

The Ohio Ewe Production Registry for Purebred Flocks

This program is sponsored by Ohio Sheep Improvement Association in cooperation with Ohio State University Animal Science Extension Service. This ewe production program is for purebred sheep breeders who are interested in keeping a performance record as basis for ewe and ram selection along with type or breed selections. Records secured have not been published since this was the gentlemen's agreement made with the breeders. Some of the working details of the Ohio Production Registry for Purebred Flocks are:

1. Forms are furnished to breeders by Ohio Sheep Improvement Association.
2. Forms are filled out in duplicate. Copies mailed to Sheep Extension Specialist.
3. The record must include every ewe in the flock of breeding age.
4. Record of all lambs born are made, death losses and the cause are listed.
5. All lambs are weighed in the presence of one or more persons authorized by the Secretary when between 105 and 135 days of age. A correction factor of plus 0.4 pounds daily is used in computing the 120 day weight.
6. The records include (a) name and number of ewes, (b) fleece weights, (c) lambing dates and sex, (d) sire, (e) weight of lamb, (f) date of weighing.

One Ohio breeder states "What I have learned from Ohio Purebred Production Program."

1. I have kept production records on my flock of Shropshires 12 years. This has involved weighing approximately 1,200 lambs at weaning time and over 800 individual fleeces.
2. The one most outstanding thing I have learned is that it is impossible to tell the production ability of a ewe by looking at her. I have had ewes that looked almost identical, yet one ewe in five years has produced an average of 65 pounds of lamb per year at weaning time, while the other ewe has produced close to 200 pounds of lamb per year.
3. Size does seem to have some correlation to productive ability, yet this has been proven wrong so many times that it cannot be used as a measuring stick.
4. The sire of the lamb does not seem to influence the weight of the lamb at weaning time to a very great extent.

5. I spent quite a bit of time going over the records to find some correlation between the sire and the weight of the lamb, but I could not find anything very conclusive. The sire of the ewe herself does not have a definite relationship to her production abilities.
6. Records show that ewes, sired by one ram I used produced an average of over 40 pounds more lamb per ewe per year than ewes sired by another ram I used.
7. Probably the one factor that stands out in the production of pounds of lamb is that of producing and raising twins. The ewe that consistently raises twins is naturally going to have a much better production record than the ewe that raises singles. One of the most surprising things to me was the comparison of the weights of the single and the twin lambs. Dividing the weights of the twin lambs and the single lambs over the entire 12 year period, I found that under my system of production, the single lambs averaged just 6 pounds more per lamb at weaning time than the twin lambs. So naturally the twin lambs are the most desirable.

PART III

The Commercial Ewe Flock Production

The Ohio Commercial Ewe Flock Production Program is sponsored by the Ohio Sheep Improvement Association in cooperation with the Animal Science Agricultural Extension Service.

The purpose of this program is to:

1. Locate and recognize commercial ewe flocks that are especially efficient in the production of lambs and wool, and to encourage greater participation in production practices that enable farmers to make more profit for their sheep enterprise.

Nomination:

1. All Ohio sheep flock owners are invited to enroll their Ewe Flock in Commercial Ewe Flock Production Club.
2. Enrollment must be made with Secretary of Ohio Sheep Improvement Association, Plumb Hall, Ohio State University, Columbus, Ohio.
3. Production shall be calculated from reports of sales of one crop of lambs and wool taking place within fifteen (15) months from beginning of the breeding season.
4. All ewes in the flock exposed to rams during the breeding season must be included in the calculation of production.

5. Reports of lambs and wool sales shall be filed with the County Agricultural Agent or State Sheep Extension Specialist at the time the Flock Production Summary is made.
6. All calculations are to be figured on number of breeding ewes in flock when exposed to rams.

Records:

1. Total weight of lambs produced and sold, number of lambs borned and raised, weight and price.
2. Wool - Total weight sold from breeding flock, number of fleeces, and price.
3. Breeding Program - A report of the breeding of sire and brood ewes.

An analysis of all the 1955 Ohio Commercial Ewe Flock Production Records show the production for all flocks to be:

- 119 lambs raised per 100 ewes exposed to rams
- 103.2# of lambs marketed per ewe exposed
- 10.1# of wool sheared per ewe
- \$27.50 gross sales of lambs and wool per ewes exposed to rams.

This is a gross return of \$165.00 per animal unit - 6 brood ewes.

A summary of the 1955 Ohio Commercial Ewe Flock Production Club cooperators records show that:

BREEDING PROGRAM

84% of these sheepmen were using a two or three breed crossbred type ewe to market the 103.2 pounds of lamb and 10.1 pounds of wool per ewe for a gross return sale of \$27.50 per ewe exposed.

52% used a western type crossbred ewe. Either black-faced or white-faced.

32% used a native type crossbred ewe.

91% of these sheepmen are following a crossbreeding program.

97% used purebred rams.

90% are following a recommended system of crossbreeding.

29% are saving ewe lambs for flock replacement, 71% are purchasing yearling crossbred type ewes.

SOME MANAGEMENT PRACTICES

82% of these sheepmen are following a scheduled internal parasite control program, including drenching and rotation on pasture.

72% of these sheepmen are using rotation legume-grass type meadows with the available bluegrass pastures.

81% of these sheepmen are topping out lambs and marketing the lambs on a graded basis.

92% of these sheepmen are cooperating in County Sheep Improvement Programs.

95% of all buck lambs were castrated.

The Ohio Commercial Ewe Flock program has become one of our best extension educational tools to help arouse interest in profitable sheep husbandry, helps to get action and helps to stimulate good discussions in area of production and marketing practices of lambs and wool.

USING PERFORMANCE TESTING INFORMATION IN OUR EXTENSION PROGRAMS ^{1/}

We have had a full program in the afternoon on performance testing. I am sure that the program committee did not expect me to outline a detailed plan for carrying out this project.

First let me say that performance testing programs need some official status. Neither the USDA or the breed associations to date have given authority to this type of work. DHIA in dairy has the sanction and the cooperation of USDA and the breed associations. The breed associations in dairying have had classification work. Here we do not get response. Why?

This is my second point, we need uniform terminology. We need the same kind of a yard stick in all States. When facts are given it should be on the same age and feeding period. Early in my extension work we in Connecticut recommended accredited baby chicks. This meant in Connecticut that the eggs from which the chicks were hatched came from hens accredited for B.W.D. These chicks sold for about twenty cents each. Ohio, Illinois and Indiana were advertising accredited chicks for eight to ten cents. What were they? A guarantee that when they matured they would look like the breed they were represented for and were they loaded with B.W.D.? Yes. So let's get our standards set for all States so we can speak a common language.

Thirdly, are we to promote this work? We in extension continually take on new jobs without letting go of our older forms of work. We continually over load.

Fourth, until the breeders can see the need and demand the work, let the experiment stations improve the standards. Don't involve ourselves in work that the producer can do for himself. We would have lots of fun building chutes, hauling scales, doing clerical work, summarizing if we were foolish enough to get into that job.

Five, if we do go in, let's get all the "get" of a bull and not selected individuals. I have here a list of the calves at the University of Connecticut. Let's look them over:

^{1/} Presented by Donald C. Gaylord, Extension Animal Husbandman, University of Connecticut, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

TABLE I

Angus

		<u>Birth</u>	<u>Birth Wt.</u>	<u>Weaned</u>	<u>Weight</u>	
63B	A.S.	3/23	55	11/20	536	9/27 creep
5	A.S.	4/4	54	11/22	433	no creep
98	A.H.	4/24	55 $\frac{1}{2}$	11/22	480	9/27
92	A.H.	6/18	49	11/15	305	no creep
102	A.H.	7/15	51	1/21	360	creep
103	A.H.	7/19	48	1/23	365	(show calf) creep
104	A.H.	8/1	62	1/23	360	creep
105	A.H.	8/10	53	1/23	356	creep

TABLE II

Hereford

69A	H.S.	4/3	68	10/31	435	no creep
64A	H.B.	4/12	68	10/29	411	(9/27-354)
91	H.H.	4/27	64	10/9	288	(9/27-288)
35D	H.S.	4/27	69	11/31	359	no creep
92	H.H.	5/12	70	11/21	409	no creep
93	H.H.	5/9	53	11/29	439	(9/27-314)
94	H.H.	6/6	68	12/21	435	creep (9/27-274)
31D	H.S.	6/10	70	11/22	374	no creep
5E	H.S.	6/27	71	12/28	389	creep 11/11
71A	H.S.	7/26	57	1/21	355	creep 11/11
95	H.H.	9/2	66	1/23	318	creep 11/11
					Nov. 11	on creep
28B	H.S.	7/10	68	11/29	335	creep 11/11

TABLE III

Gain-Ability of Beef Calves

<u>Sex</u>	<u>11/27</u>	<u>3/27</u>	<u>Lbs. Gain</u>	<u>Daily Gain</u>
St	517	832	315	2.55
St	374	604	230	1.85
St	476	725	249	2.05
*St	468	651	183	1.48
F	353	559	201	1.62
F	404	671	267	2.15
*F	439	679	240	1.94

* Means full feed, others on corn silage and three pounds grain daily.
All half brothers and sisters except the steer on full feed.

We have been talking a lot here about the consumer and what the market demands. We are talking now about what the producer wants. Fast rate of gain with economical feeding ratio. What about the retailer? Here are a few figures on two carcasses which we used at a Beef Day. Choice steer was fed less than eight hundred pounds of grain.

TABLE IV

<u>Grade</u>	<u>High Prime</u>	<u>Choice</u>
Live weight	1370	910
Carcass weight	944	546
Dressing %	68.9	60.0
Carcass price	\$452.76	\$231.34
% Retail cut	61.07	68.37
% Lean trim	9.74	12.64
% Bone	5.41	6.51
% Fat trim	21.48	11.13
	(198 lbs.)	(61 lbs.)
Total Value	\$390.02	\$252.73
Return to retailer	- 62.74	+ 21.39

The first three Angus are from a different bull than the last five. We have different birth dates, we have different lengths of time on weaning. Look it over and judge those two bulk. The Herefords are from one bull still scattered over five months of being dropped, some with others without creep. How are you going to account for this bull? Table III takes weaned animals, steers and heifers. The starred animals as you will see were selected for fitting in shows. Our full feeding poisoned them as far as daily gains were concerned. We still have work to do on feeding programs. Table IV was thrown in as we were talking a lot about consumers. I thought they would be appropriate.

We have many confusing ideas. The breeder wants good doing cattle. The slaughter wants high dressing percentage. The consumer wants steak and chops. Thus the retailer needs a headless, legless, paunchless wonder.

Perhaps we should go back to the 1700's and review the work of such men as the Colling Brothers, Thomas Bates, Thomas Booth. They were also looking for edible meat.

We have looked for short legged, thick, blocky animals recently and what did we bring forth? Yes, you guessed it "Dwarfism." Should we forget:

- Fertility
- Birth weight
- Mothering ability
- Survival
- Gain ability
- Feed efficiency
- Market grade
- Carcass value?

I think not. Get the results of Dr. Bell of Ohio State Experiment Station, Wooster, Ohio, on Shropshire sheep if you want a real shock. The sour note about the flock from which these records were taken is that the rearing rate for the year studied was only a little above seventy lambs to each one hundred ewes. Since some of the ewes reared twins, the proportion of barren and nonrearing ewes to those which reared lambs was about one out of four. "Year after year statistics are presented which show that the annual lamb crop from ewes in the U.S. is about eighty lambs for each one hundred ewes in the breeding flock." We've been told we will need 125% to be profitable.

Now it is up to you to decide how you are to work your individual plan of work. We still have Demonstrations, Tours, Field Trips, Short Courses. Thus there is a real need for facts and records. I believe we need a committee or perhaps three subcommittees (beef, sheep, swine) to study what has been done and select a common program and report back to us at our next conference, or at their earliest convenience.

USING RECENT ANIMAL NUTRITION DEVELOPMENTS IN OUR EXTENSION PROGRAM 1/

We should first analyze the developments to see whether or not they are sound and whether they will be more profitable in the long run to the producer. We should keep in mind that these newer developments are not intended to be the panacea for all animal ailments and that they will not replace an adequate diet, good breeding, good management, and disease and parasite control. Any development that results in increased gains and the saving of feed is progress, but when everyone adopts these practices, the profit might not be any greater in a few years. However, the producer would be forced to use the newer materials if he is to continue making profits on his livestock feeding operations. The results reported by Dr. Burroughs and other research workers are specific in that there is a time element and a species, sex, age, and ration difference. Frequently, the farmer's interest is developed before sufficient information is available to the extension man to definitely determine the soundness of the recommendations.

1/ Presented by J. E. Foster, Head, Department of Animal Husbandry, University of Maryland, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

STILBESTROL AND HORMONE FEEDING TO CATTLE AND OTHER LIVESTOCK

Experimental results showing the beneficial influence of adding stilbestrol to fattening cattle rations were first described 2 years ago in February at Iowa State College in Ames. A few months later in November 1954 permission was given by Federal Food and Drug Administration in Washington for usage of stilbestrol in cattle rations on a widescale farm basis. Since that time, just 18 months ago, stilbestrol usage in cattle feeds has been approved in all 48 States, in Canada to the north, and in principal cattle producing countries of South America. The speed with which cattle feeders have adopted this new gain-stimulator in their everyday feeding operations has been quite rapid when one realizes that approximately two-thirds of all beef cattle on feed in the United States are today receiving stilbestrol in their rations.

The Need for a Cattle Gain-Stimulator

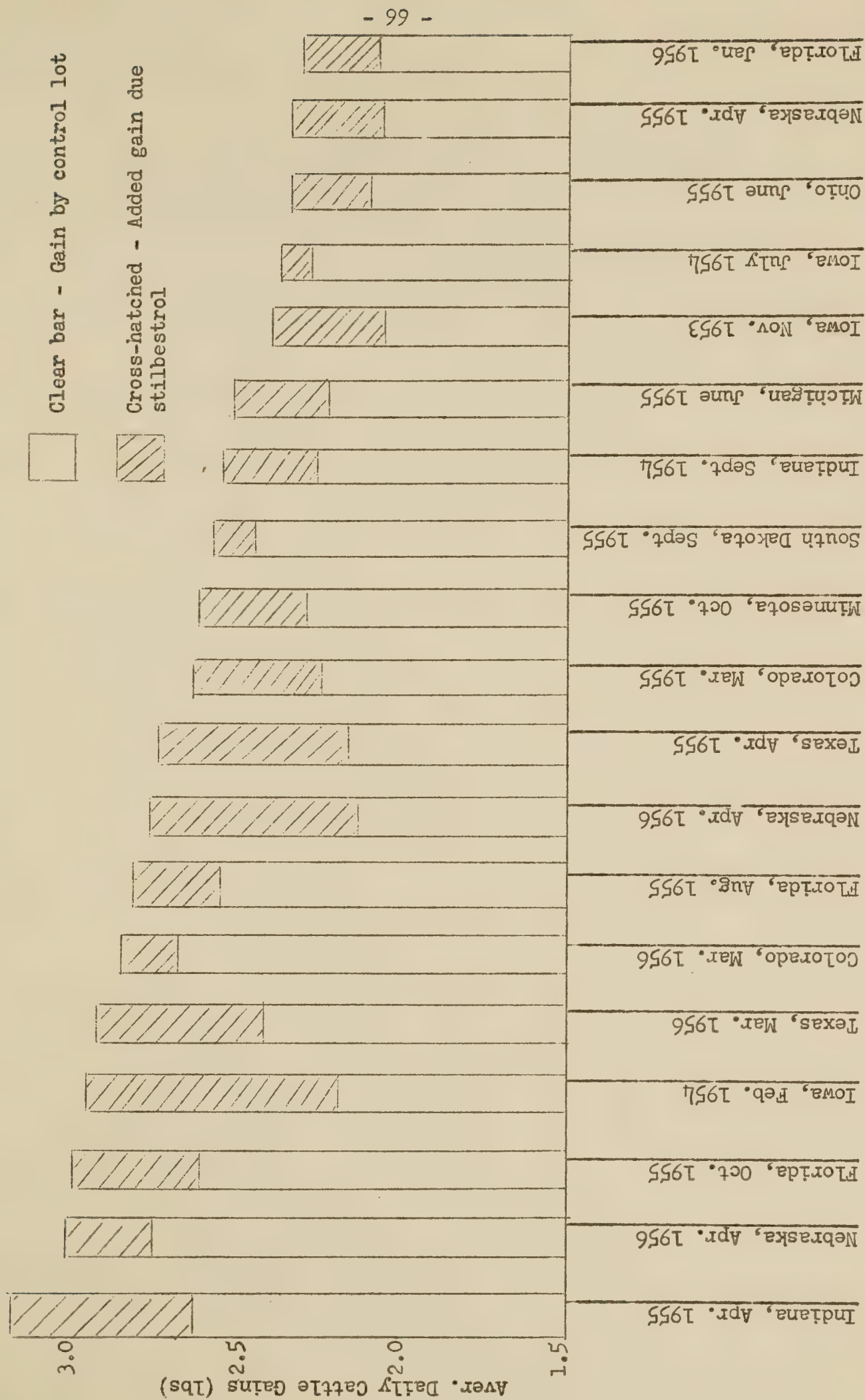
Perhaps one of the main reasons for this speedy adoption of stilbestrol was the long-felt need on the part of the cattleman for a gain booster which would allow him to make more efficient conversion of his feeds into beef and at lower feed costs. This was especially critical with the squeeze of falling cattle prices and narrower feeding margins the past 2 years. Poultry and swine producers had already received help a few years earlier from gain-stimulators such as vitamin B₁₂, antibiotics and a host of new B-vitamins. None of these poultry and swine gain-boosters had proved particularly helpful when tried in beef cattle rations. College research workers were quick to grasp the potentialities of stilbestrol usage and to test its value under all types of cattle feeding conditions. During the past 2 years some 35 stilbestrol cattle feeding experiments have come to our attention from 15 different Agricultural colleges. The basis of this discussion is the results obtained from this wealth of experimental evidence.

Stilbestrol Most Helpful in Drylot Cattle Fattening Rations

Liveweight gains have been stimulated an average of 17% by stilbestrol feeding using different types of fattening cattle rations including heavy corn grain feeding, barley, corn and sorghum silage rations, and mixed rations containing both grains and silages. This is illustrated in table 1 and chart 1 which summarizes 21 college experiments in which the type of basal ration fed produced a daily gain of 2 lbs. or more per animal up to the time the cattle were marketed for slaughter. In every experiment stilbestrol produced

1/ Wise (Burroughs, Department of Animal Husbandry, Iowa State College, at the Interregional Livestock Production and Marketing Conference, June 13-16, 1956, Ithaca, New York.

STILBESTROL STIMULATION OF CATTLE GAINS WITH FATTENING RATIONS



a gain stimulation, the highest stimulation being 37% and the lowest stimulation being 4%.

More important, feed savings were noted in each of these 21 experiments ranging from 3 to 26% with an average saving of 12% in the lots receiving stilbestrol supplements. Carcass characteristics on the average were quite similar in stilbestrol fed vs comparable control lots. Both dressing percentage and carcass grades of cattle averaged almost identically the same with minor variations in individual experiments sometimes favoring the hormone-fed cattle and sometimes favoring the cattle serving as experimental control lots (table 1).

Typical fattening experiments showing the beneficial influence of stilbestrol are presented in table 2. The Iowa experiment illustrates the performance of stilbestrol using a heavy corn grain type fattening ration. The two Indiana experiments illustrate similar performances using either a heavy corn silage fattening ration or a medium corn medium roughage type fattening ration. In each case gain stimulation was noted and substantial feed savings were observed.

Stilbestrol Feeding Also Helps Most "Growing" Cattle Rations

Many types of rations are fed to beef cattle in different sections of the country and also in any one particular section depending upon feed supplies and purpose of the feeding operation. In order to get an overall appraisal of the benefits of stilbestrol in rations primarily promoting growth in contrast to fattening rations, only those stilbestrol experiments were summarized where the basal ration produced less than 2 lbs. daily gain during the experimental feeding period. The results of this summary are presented in table 3 involving 13 experiments conducted at 6 different experiment stations. Liveweight gains were stimulated an average of 11%, the range in stimulation varying from 37% to 0%. Feed savings averaged 10% or almost as much savings from stilbestrol feeding on a percentage basis as that noted in fattening-type rations.

It is to be noted that occasionally no response was obtained from stilbestrol when fed in conjunction with a growing-type ration. Not enough experimental evidence is available to generalize as to why stilbestrol occasionally fails to give a response. There are suggestions that size or age of cattle, amount of protein in the rations, amount of roughage in the ration, or combinations of these factors may be contributing influences to this result. On the other hand an occasional inexplicable experiment may be a happen-stance situation which all experiments are subject to. For example, in a recent Iowa experiment 6 lots of 14 head of cattle were fed and handled similarly on exactly the same ration in which liveweight gain differences between the best and poorest lots averaged almost 10%, whereas, most of these lots of cattle made almost identical average daily gains. Thus, either the high or low gaining lot on the same ration in this experiment was a happen-stance result bearing no obvious explanation.

Size of cattle between 600 lbs. and 1200 lbs. does not influence the helpful response of stilbestrol. Animals from 400 to 600 lbs. may not always respond quite as much as older animals, however, more experimental work is needed on this point. The same is true with open heifers vs steers. Such heifers usually respond about as much as steers but occasionally this may not be the case. Pregnant heifers on the other hand likely will not respond to stilbestrol feeding by putting on faster gains, however, they likely will not abort or show any undesirable characteristics in the feedlot due to the feeding of 10 milligrams of stilbestrol daily. Pregnant heifers are technically considered breeding animals and recommendations are that no stilbestrol should be fed to any breeding animal since this is outside its intended usage.

Stilbestrol Feeding on Pasture

Considerable interest exists as to the merits of using stilbestrol supplements under pasture grazing conditions. At the present time no recommendations have been made for stilbestrol usage on pasture due to insufficient data available under controlled experiment conditions. The data thus far coming to our attention, however, either in progress or completed experiments indicate a favorable response from stilbestrol in most all instances but a somewhat smaller response than that noted under dry lot feeding conditions. Favorable responses have been noted in pasture experiments at the Georgia, Virginia, Iowa, Nebraska, and Illinois Experiment Stations and no response in a Mississippi Experiment.

The results obtained in 3 of these pasture experiments are summarized in table 4. Native grass pasture was used in a Nebraska experiment in which no concentrates were fed during the 117-day grazing period except the supplement which consisted of 1 lb. per animal per day with and without 10 mgs. of stilbestrol in two respective groups. Gains were stimulated in the stilbestrol group during grazing by 0.25 lb. per steer per day with a saving in pasture feed costs of 1.8¢ per lb. of gain. Following the grazing period the cattle were given a corn finishing ration in drylot for 130 days and the stilbestrol comparison continued. The overall gains for the entire 247 days on experiment showed a favorableness of 40 extra pounds per steer resulting from stilbestrol feeding. The corresponding costs of gains were 19.3¢ and 17.5¢ or a saving of 1.8¢ per pound of gain made by the stilbestrol cattle.

In an Iowa pasture experiment corn grain was fed on brome-alfalfa pasture for 136 days with and without 1 lb. of supplement containing 5 mgs. of stilbestrol in two comparable groups of steers. The stilbestrol-fed cattle gained .13 lb. more daily per steer than the control group and their costs of gain were 2.2¢ a lb. cheaper while on pasture. These two groups of cattle were placed in drylot for an additional 59 days and given a full feed of corn in which the stilbestrol comparison was continued. Throughout both the pasture and finishing period the stilbestrol cattle made .15 of a lb. additional daily gain per animal and their overall feed costs were about a cent a lb. cheaper than the check group.

The cattle in the Illinois pasture experiment were handled very similar to the cattle in the Iowa experiment and the results agree closely as to the benefits derived from stilbestrol feeding. It would appear from these results that if comparable results can again be obtained from stilbestrol experiments underway this summer that we will be in a position to recommend its' widespread usage this next grazing season. The reason for this amount of caution in making recommendations lies in the fact that pastures vary considerable in make-up the country over and also systems of utilizing pastures are quite varied each of which may have a bearing upon the usefulness of feeding this hormone material under pasture conditions.

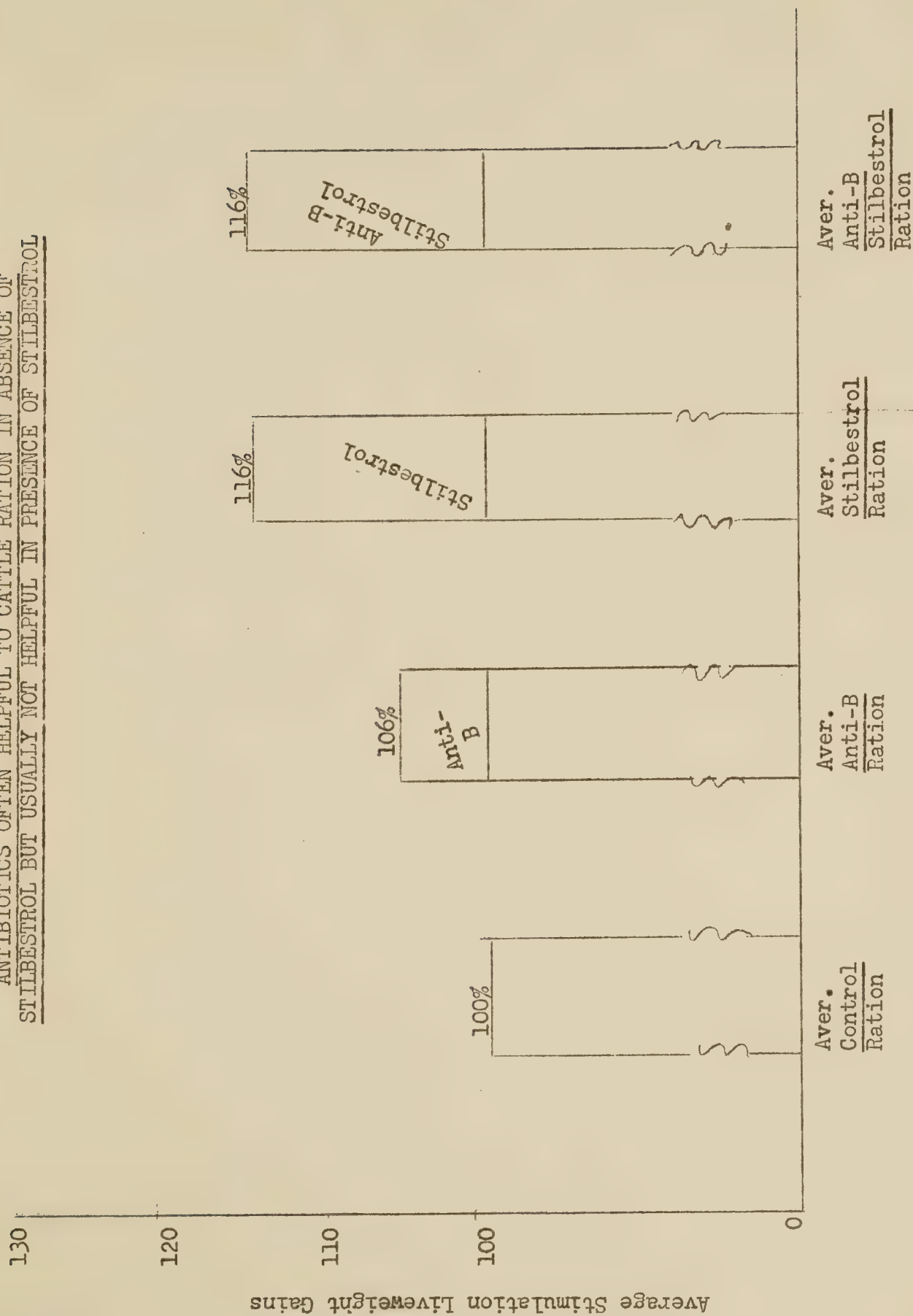
The Value of Antibiotics for Cattle When Added to Stilbestrol Supplements

Considerable interest in the value of adding antibiotics to cattle rations has existed amongst college research people even predating the current usage of stilbestrol. In an effort to evaluate the benefits of antibiotics in cattle rations 32 experiments over the past 5 years were summarized involving no stilbestrol feeding. As can be seen in table 5 considerable variation in response to antibiotics was obtained between experiments, however, on the average there were more favorable responses than unfavorable results. With respect to average daily gain, antibiotics brought about a 6% stimulation on the average and resulted in an average of 4% greater feed savings. This amount of feed savings would appear to be large enough to a little more than pay for the cost of adding antibiotics under present cattle feed prices in many areas. It may well be that specific cattle feeding conditions can be defined in the future where even larger feed savings can be obtained from antibiotic additions to cattle rations.

In an attempt to see whether such a feeding condition existed where stilbestrol was included in the cattle ration, 18 college experiments were summarized in table 6 in which antibiotics were added to cattle supplements containing stilbestrol. As can be seen in this table the addition of antibiotics resulted in just as many negative responses (8 experiments) as positive benefits (8 experiments) and on the average the combination of stilbestrol and antibiotics was no better than stilbestrol when fed alone. This result showing the average gain stimulating influence of stilbestrol and antibiotics when added individually and in combinations to cattle rations is further illustrated in chart 2 in which the gains made by control cattle was assigned a value of 100 for comparative purposes. The cattle receiving the antibiotic additions without stilbestrol gained 106% faster than the control cattle. The cattle receiving stilbestrol without the antibiotic addition gained 116% faster than the controls and 10% faster than antibiotics were added alone. When the combination of antibiotics and stilbestrol was fed the gains were again 116% faster than the controls but no faster on the average than where stilbestrol was fed alone and without antibiotics.

Chart 2

ANTIBIOTICS OFTEN HELPFUL TO CATTLE RATION IN ABSENCE OF
STILBESTROL BUT USUALLY NOT HELPFUL IN PRESENCE OF STILBESTROL



Stilbestrol Feeding to Cattle vs Stilbestrol Implantation

Research work in which stilbestrol is administered by surgical implantation beneath the skin of cattle like research work with antibiotics has been underway for a much longer period of time than investigations with oral usage of stilbestrol. The rapidity with which excellent results were obtained by research workers by placing stilbestrol in the feeds of cattle plus the rapidity with which this feeding method was quickly adopted in cattle feeding practice is perhaps a strong overall indication of the superiority of the feeding method over the implantation method. Stilbestrol, when implanted under the skin in proper amounts, gives a liveweight gain response and feed savings influence rather comparable to oral feeding of stilbestrol but suffers disadvantages in sometimes producing undesirable side effects. Some of the undesirable effects on occasion noted by college research workers are excessive riding following implantation, sunken loins and high tail heads, prolapse of the vagina, and poor carcass characteristics following slaughter. These undesirable side effects have not been observed by the oral feeding of stilbestrol by most college research workers and by extensive field experiments under farm conditions.

Interest in recent months has been given to the possibility that if smaller dosages of stilbestrol were implanted under the skin of cattle, perhaps these undesirable side effects could be minimized. Whether this theory will eventually prove to be correct and whether these smaller dosages of stilbestrol will give as large a gain stimulation over extended periods of time as oral feeding of stilbestrol awaits future investigation. The present day cost of placing stilbestrol in cattle feeds is not greatly different than the cost of implantation of stilbestrol beneath the skin of cattle when labor costs of implantation are given considerations. It is our belief that feeding stilbestrol in cattle supplements is the safest and best all-around method of administering this helpful material to all types of growing and fattening beef cattle.

Duration of Stilbestrol Throughout the Feeding Period

The effectiveness of stilbestrol feeding remains throughout the entire time it is used in the cattle ration. In general it is just as effective in the early part of the feeding period as it is the latter part of the feeding period and vice versa. Occasionally misleading results have been obtained where conclusions of this nature have been made based on a single experiment of relatively short duration. For example, in the following 6 Iowa experiments one could select individual experiments where there is an apparent favorableness either to more benefits early as compared to later in the feeding period and other individual experiments where the reverse is true. If one averages together the benefits in all 6 experiments, stilbestrol was just as effective in one period as in the other period.

Stilbestrol Just as Effective in Early as Latter Part Feeding Period

Stimulation in Gains (%)	First Half	Last Half	Total Period
Experiment 1	23%	17%	20%
Experiment 2	4	21	13
Experiment 3	20	5	13
Experiment 4	12	7	10
Experiment 5	15	17	16
Experiment 6	14	17	16
Average	15%	14%	15%

The number of days that stilbestrol can be fed and still get beneficial results appears to extend as long as most cattle are fed in common feeding practice. The longest continuous feeding of stilbestrol coming to our attention has been a Nebraska experiment which extended over a period of 377 days or slightly more than a year. The results are graphically illustrated in chart 3. In this experiment steers weighing just over 500 lbs. were given a wintering ration for 130 days, then pastured for 117 days followed by a finishing period in drylot for 130 days. At the end of the wintering period the stilbestrol fed steers were 27 lbs. heavier than the controls, 58 lbs. heavier at the end of the grazing season, and 69 lbs. heavier at market time 373 days after the beginning of stilbestrol feeding.

Effectiveness of Stilbestrol in Other Species of Livestock

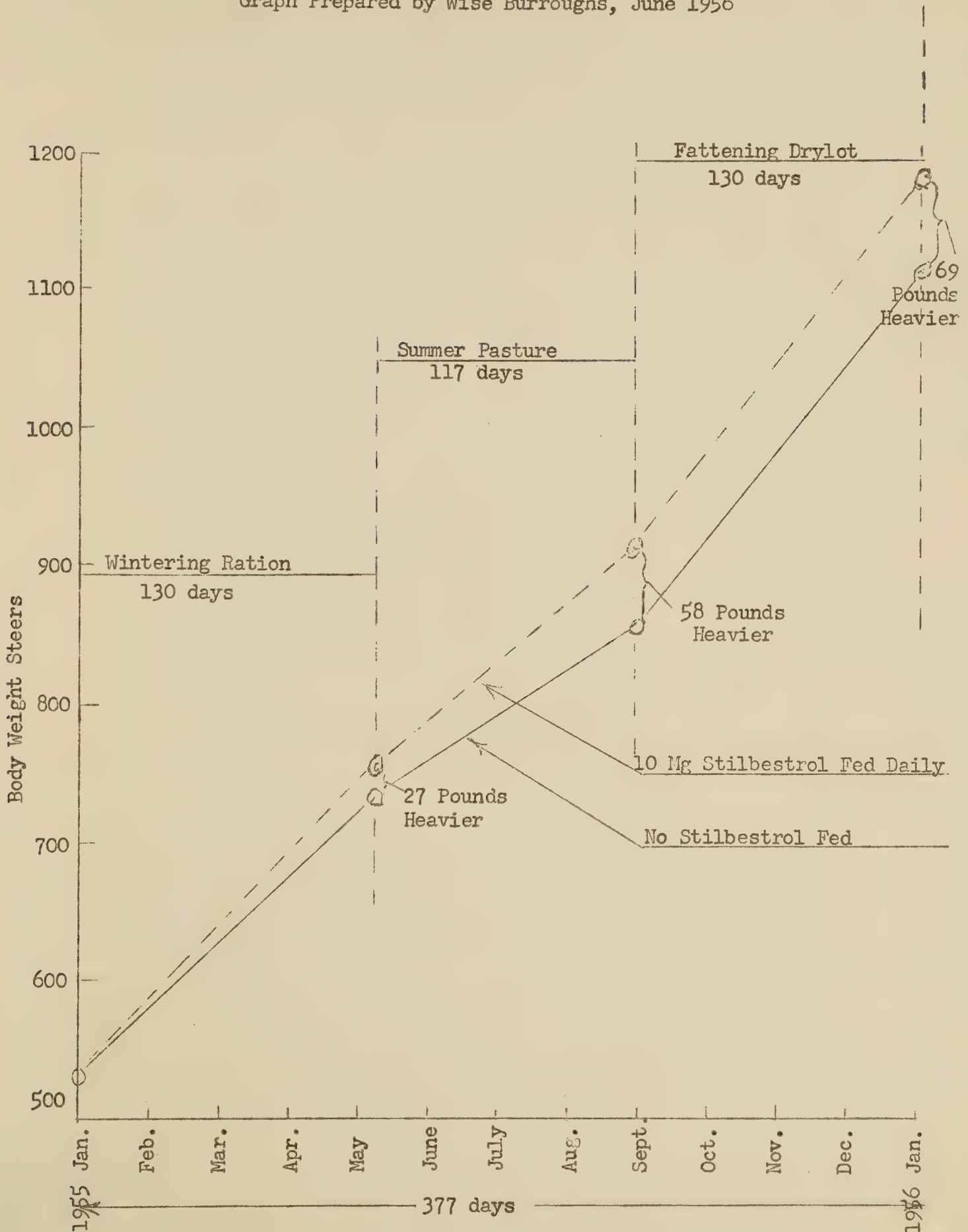
The fattening weather lamb responds to stilbestrol in his feed almost as much as growing and fattening beef cattle. It is uncertain at the present time whether female lambs give a response. The most effective amount of stilbestrol for weather lambs on experiment has been 2 mgs. per lamb in the daily feed allowance. The lamb is more sensitive to overdosage of this hormone-like material than is the case with cattle. However, when fed at this level no undesirable side-effects develop, gains and feed savings are improved, and carcasses are satisfactory following slaughter.

Swine show little or no helpful response to stilbestrol feeding such as improved rate of gain or improved feed efficiency. Also little or no difficulty has been observed in cattle feed lots where swine have run behind cattle receiving stilbestrol feeds. In controlled feeding experiments stilbestrol levels in excess of .16 mgs. per lb. of feed intake have shown observable effects upon the pigs reproductive system. Apparently this level of stilbestrol intake in swine is not ordinarily encountered where hogs run behind stilbestrol-fed cattle provided precautions are taken to keep the hogs out of cattle feed troughs.

Nebraska Cattle Experiment 1955-56

STILBESTROL FEEDING THROUGHOUT 12-MONTH PERIOD

Graph Prepared by Wise Burroughs, June 1956



Many attempts to stimulate milk production in virgin and lactating cows by stilbestrol feeding have been made by experiment stations in this and other countries over the past 10 to 15 years. Although the levels fed were greatly in excess to the levels currently fed to beef cattle, nevertheless little or no practical success was achieved in these experiments. Some interest is being shown by research workers in testing lower feeding levels of stilbestrol as an aid in stimulating milk production. These tests are inconclusive at this time.

Estrogens are currently being fed and implanted into growing and fattening cocherals. In this species no increase in rate of gain or feed efficiency is usually noted, however, finish appears to be improved by estrogens. It thus appears that the mode of action of estrogens in poultry differs physiologically from the mode of action in growing and fattening cattle and lambs.

Usage of Other Hormone Substances in Livestock Feeds

In addition to estrogens other hormones and hormone influencing substances have been tested by research workers in attempting to stimulate live-weight gains or milk production or to improve fattening with the overall goal of converting livestock feeds more efficiently into livestock and livestock products. Particular attention has been focused upon materials effecting thyroid activity either inhibiting its action or enhancing its activity in the animal body. Thiourea and thiouracil are examples of feed additives which depress thyroid activity in animals and bring about a quiting influence which research workers have theorized might be helpful to fattening animals. Thyroxin and thyro protein are examples of feed additive which enhance thyroid activity in an animal body and research workers have postulated that this might be helpful in stepping up body activity such as in milk production or in egg production. Although some success has been achieved experimentally by these substances, none of them however have become widely used in feeding practice similar to the present use of stilbestrol in cattle rations.

The future holds great promise that many other hormone and hormone-like substances will be tested experimentally with the odds favoring greater usage of these substances wherever and whenever such substances are advantageous in animal feeding practice. Some of the specifications which hormone or hormone substances must pass in order that they can be advantageously used in practical animal feeding are as follows: (1) produce better livestock or livestock products, or produce livestock or livestock products at lower feed costs, (2) bring about the above desirable effects without promoting appreciable undesirable side effects in animals and (3) produce meat or livestock products that are wholesome in every respect and are free from residues or handling hazards dangerous to public health. Stilbestrol feeding to beef cattle as it now is being practiced has passed each of these specifications.

STILBESTROL BENEFITS IN DRYLOT (FATTENING) RATIONS*

College Experiment	% Gain Stimu- lation	% Feed Saving	Dressing % Difference	Carcass Grade Difference
Iowa, Nov. 1953	17 %	7 %	+0.1 %	+0.1 %
Iowa, Feb. 1954	37	24	+0.5	0.0
Iowa, Apr. 1954	15	10	-0.1	+0.1
Iowa, July 1954	5	5	-0.6	-0.2
Indiana, Sept. 1954	13	11	-	-0.2
Colorado, Mar. 1955	17	16	-0.2	0.0
Nebraska, Apr 1955	18	12	-0.8	-0.1
Texas, Apr. 1955	29	26	+0.2	0.0
Indiana, Apr. 1955	21	18	-	-
Michigan, June 1955	13	20	+0.1	+0.2
Ohio, June 1955	14	13	-	-
Florida, Aug. 1955	10	4	-0.3	-0.2
South Dakota, Sept. 1955	4	4	0.0	+0.1
Florida, Oct. 1955	15	3	-0.3	+0.3
Illinois, Oct. 1955	18	17	-1.0	-0.2
Minnesota, Oct. 1955	15	8	+0.3	+0.1
Florida, Jan. 1956	13	7	-0.6	-0.2
Colorado, Mar. 1956	6	5	-	-
Texas, Mar. 1956	20	15	+0.3	0.0
Nebraska, Apr. 1956	34	16	+1.2	+0.1
Nebraska, Apr. 1956	9	10	-0.3	0.0
Av. 21 Exps. from 11 colleges	17 %	12 %	-0.1 %	0.0

* Only these rations producing 2 lbs. or more daily gains per animal were considered fattening rations in this comparison

TYPICAL FATTENING EXPERIMENTS USING STILBESTROL SUPPLEMENTS

Iowa Experiment 1954

112-day feeding period	Mgs. Stilbestrol fed daily/steer		
8 steers per lot	None	5.5	11.0
Av. initial weight, lbs.	691	696	696
Av. final weight, lbs.	941	992	1039
Av. daily gain, lbs.	<u>2.23</u>	<u>2.64</u>	<u>3.06</u>
Av. daily ration			
Shelled corn, lbs.	12.7	14.6	14.6
Silage, lbs.	11.8	11.8	11.7
Hay, lbs.	2.5	2.5	2.5
Supplement, lbs.	2.0	2.0	2.0
Feed/100 lbs. gain, lbs.	940	874	756
Cost of feed per lb. gain	<u>22.1¢</u>	<u>20.9¢</u>	<u>18.3¢</u>
Dressing percentage	60.0%	60.2%	60.5%
Margin per steer	\$4.00	\$10.00	\$26.00

Purdue Experiment 1955

10 steers per lot	123-day test		98-day test	
	Control	Stilbes.	Control	Stilbes.
Initial weight, lbs.	873	875	754	751
Final weight, lbs.	1147	1199	1019	1074
Daily gain, lbs.	<u>2.33</u>	<u>2.64</u>	<u>2.71</u>	<u>3.30</u>
Daily ration				
Corn silage	- -	- -	52.2	52.3
Ground corn, lbs.	11.6	12.6	- -	- -
Ground cobs, lbs.	9.2	9.4	- -	- -
Supplement, lbs.	3.5	3.5	3.5	3.5
Feed cost per lb. gain	22.9¢	21.2¢	15.9¢	13.1¢

STILBESTROL BENEFITS IN DRYLOT (GROWING) RATIONS*

<u>College Experiment</u>	<u>No. Days on Test</u>	<u>% Gain Stimulation</u>	<u>% Feed Saving</u>
Iowa, Apr. 1954	127	9 %	10
Iowa, June 1954	75	16	9
Iowa, June 1954	168	16	25
Tennessee, Jan. 1955	171	8	6
Tennessee, Jan. 1955	178	21	10
Tennessee, Jan. 1955	84	20	12
Kansas, May 1955	140	0	0
Kansas, May 1955	140	6	6
Iowa, May 1955	119	37	37
Iowa, May 1955	119	0	6
Georgia, July 1955	149	5	3
Florida, Jan. 1956	117	2	5
Nebraska, Apr. 1956	112	0	0
Av. 13 Exps. at 6 colleges:		11 %	10 %

* Only those rations producing less than 2 lbs. daily gain per animal were considered growing ration in this comparison.

STILBESTROL FEEDING ON PASTURE

	: NEBRASKA :		: IOWA :		: ILLINOIS :	
	: Check Stilbes- :		: Check Stilbes- :		: Check Stilbes- :	
	: Lot	: trol	: Lot	: trol	: Lot	: trol
	: <u>Grazing Period Only</u> :					
Kind of pasture	: Native-Grass :		: Brome-Alfalfa :		: Brome-Alfalfa :	
Days on pasture	: 117	: 117	: 136	: 136	: 126	: 126
Initial weight steers, lbs.	: 746	: 738	: 838	: 857	: 668	: 666
Weight off pasture, lbs.	: 877	: 898	: 1115	: 1153	: 965	: 1001
A.D. Gain on pasture	: <u>1.12</u>	: <u>1.37</u>	: <u>2.04</u>	: <u>2.18</u>	: <u>2.36</u>	: <u>2.66</u>
Daily feed on pasture	:		:		:	
Ground ear corn, lbs.	:		: 12.0	: 11.9	: 17.4	: 17.5
Supplement, lbs.	: 1.0	: 1.0	: 1.0	: 1.0	: 1.5	: 1.5
Cost per lb. gain	: <u>13.3¢</u>	: <u>11.5¢</u>	: <u>21.2¢</u>	: <u>19.0¢</u>	: <u>16.6¢</u>	: <u>15.1¢</u>
	: <u>Grazing Period Plus Drylot Finishing Period</u> :					
Days in drylot	: 130	: 130	: 59	: 59	: 56	: 56
Days pasture and drylot	: 247	: 247	: 195	: 195	: 182	: 182
Av. market wt. steers, lbs.	: 1124	: 1156	: 1223	: 1272	: 1076	: 1105
A.D. Gain per steer, lbs.	: <u>1.53</u>	: <u>1.69</u>	: <u>2.01</u>	: <u>2.16</u>	: <u>2.24</u>	: <u>2.41</u>
Av. daily feed total period	:		:		:	
Ground ear corn, lbs.	: 7.6	: 7.6	: 13.3	: 14.0	: 16.6	: 16.4
Hay, lbs.	: 3.9	: 4.0	: 1.7	: 1.6	: 1.6	: 1.6
Supplement, lbs.	: 1.2	: 1.2	: 1.0	: 1.0	: 1.0	: 1.0
Cost per lb. gain	: <u>19.3¢</u>	: <u>17.5¢</u>	: <u>22.0¢</u>	: <u>21.1¢</u>	: <u>18.1¢</u>	: <u>17.3¢</u>

Table 5

SUMMARY ANTIBIOTIC BENEFITS IN ABSENCE STILBESTROL

College Experiment	Daily addition antibiotic (Mg)	% Gain Stimulation	% Feed Savings
Aureomycin added to cattle ration			
Illinois 1951	40	- 8	- 6
Purdue 1953	150	8	10
Purdue 1953	75	21	11
Purdue 1953	75	- 1	0
Purdue 1953	75	18	14
Iowa 1954	75	4	2
Iowa 1954	75	5	7
Purdue 1954	75	8	3
Purdue 1954	50	12	10
Colorado 1955	75	13	11
Florida 1955	70	- 4	- 5
Iowa 1955	75	20	12
Iowa 1955	75	17	8
Nebraska 1955	75	- 7	- 9
Purdue 1955	75	21	11
Purdue 1955	75	0	7
Kansas 1956	45	- 1	- 5
Kansas 1956	75	0	7
Kansas 1956	72	0	7
Nebraska 1956	75	- 7	- 5
Purdue 1956	75	3	2
Purdue 1956	80	1	1
Purdue 1956	75	9	4
Average 23 Aureomycin Comparisons		+ 6	+ 4
Terremycin added to cattle ration			
Purdue 1954	75	4	- 1
Purdue 1955	50	3	2
Texas 1955	75	2	7
Texas 1955	150	10	6
Texas 1955	75	10	8
Texas 1955	150	15	14
Purdue 1956	80	7	3
Purdue 1956	100	- 2	- 5
Virginia 1956	80	10	-
Average 9 Terremycin Comparisons		+ 7	+ 4
Average all 32 Antibiotic Comparisons		+ 6	+ 4

Table 6

**ANTIBIOTIC-STILBESTROL COMBINATIONS NO BETTER THAN STILBESTROL ALONE
WHEN TESTED IN 18 COLLEGE COMPARISONS**

College Reporting Experiment	Average Daily Gain			Feed per 100 lbs. Gain		
	Stilbes. Alone	Anti-B +	% Increase due Anti-B	Stilbes. Alone	Anti-B +	% Increase due Anti-B
	Experiments where 75-100 mg. Aureomycin fed per steer per day					
Nebraska, 1955	2.47	2.32	-6	1069	1119	-5
Iowa, 1955	1.32	1.18	-11	1334	1526	-13
Iowa, 1955	.89	.90	+1	2191	2200	0
Washington, 1955	1.76	1.86	+6	990	940	+5
Florida, 1955	3.70	3.50	-5	662	670	-1
Florida, Jan. 1956	2.40	2.37	-1	1154	1111	+4
Texas, Mar. 1956	3.05	3.19	+5	937	891	+6
Purdue, Apr. 1956*	2.50	2.79	+12	1833	1617	+12
Washington, Apr. 1956	1.65	2.11	+28	2141	2511	-17
Nebraska, Apr. 1956	2.30	2.18	-5	1332	1344	-1
Georgia, Apr. 1956	2.00	1.85	-8	-	-	-
Nebraska, Apr. 1956	2.04	2.08	+2	1962	1933	+2
Kansas, Apr. 1956	2.91	2.94	+1	1779	1734	+3
Av. 13 Aureomycin Exps.	2.23	2.26	+1%	1448	1466	-1%
Experiments where 75 mgs. Terremycin fed per steer per day						
Florida, Jan. 1956	2.40	2.27	-5	1154	1143	+1
Virginia, Apr. 1956	1.85	1.56	-15	-	-	-
Texas, Mar. 1956	3.05	3.14	+3	937	907	+3
Washington, Apr. 1956	1.65	1.65	0	2141	2247	-5
Av. 4 Terremycin Exps.	2.24	2.16	-4%	1411	1433	-1%
Experiment where 75 mgs. Illotycin fed per steer per day						
Texas, Mar. 1956	3.05	3.05	0%	937	926	+1%
Av. all 18 College Exps.	2.28	2.28	0%	1409	1413	0%

*Hexestrol a sister compound to stilbestrol was used in this experiment.

PRESENT TENNESSEE LIVESTOCK SHOW CLASSES AND
CERTAIN CHANGES PLANNED TO ENCOURAGE THE EFFICIENCY
PRODUCTION OF THE KIND OF ANIMALS THE MARKET WANTS 1/

In our Tennessee Agricultural Extension Animal Husbandry programs much emphasis is placed on the 4-H Club livestock production and marketing projects. There are five spring and five fall district junior market hog shows and sales, three spring junior lamb shows and sales, five district or area fat cattle shows and sales and one large state junior fat cattle show and sale. We usually have from 100 to 600 hogs entered in each event with a limit of three hogs to the exhibitor and in the fat cattle shows there are usually from 250 to 500 cattle entered in the district shows and 1,000 to 1,400 in the State show with an average of approximately $1\frac{1}{2}$ animals per exhibitor in each.

As I understand it, the purpose of this panel is to bring out the shortcomings as well as the merits of present day junior market livestock shows in the light of present day conditions. We all know the demand is for meat animals with less fat than the prime grade. One member of this panel has developed in his paper that "high protein diets and modern shopping methods have made the housewife more cautious about buying excess fat and waste meat cuts, yet she expects to buy meat that has flavor and is tender. Beef cattle grading choice amply meet these requirements."

In all Tennessee market livestock shows the animals are first graded into U. S. standard grades and then the top animals are placed in 1, 2, 3, etc. order in weight or breed classes. We find this grading of the animals to be a very useful and educational part of the program.

The market hogs are graded according to their market desirability, into one of three grades - U. S. No. 1s, No. 2s, and No. 3s, with the additional requirement that the No. 1s must also be strictly meat type possessing good conformation and quality. We have light and medium weight classes and the hogs qualifying as No. 1s under the above description are placed in 1, 2, 3, etc. order in their respective weight class.

Following the show the hogs are sold by auction in groups according to grade and market desirability with the No. 1s bringing a premium.

This market hog show classification has proven very useful and educational in stressing present day demand for pork with less fat.

Considering present day consumer preference for beef cattle of choice grade weighing from 850 to 1,000 pounds and the fact that in most instances under Tennessee conditions the cattleman can make more profit

1/ Presented by John S. Robinson, Extension Animal Husbandman, University of Tennessee, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

by feeding cattle to choice grade not weighing over 1,000 pounds, rather than prime, we feel that our present show classes do not sufficiently emphasize the choice grade and light cattle. Briefly, we have been following this procedure - only cattle grading prime, choice or good have been accepted for inclusion in the shows. Then only cattle grading prime, if sufficient number in class, are brought out to be placed in 1, 2, 3 etc. order in the breed classes.

We have recently surveyed our Tennessee meat packers and leading meat merchandising stores with replies to the effect that their trade for beef is almost 100 percent for the choice grade over prime. As a guide in helping to determine any constructive changes that might be introduced in Tennessee junior fat cattle show classes, county agents and vo-ag teachers were asked to check in order of preference several proposed plans that would put more emphasis on choice cattle than has been the case in the past. We received 100 replies and there were over twice as many votes for the following plan as for any of the other three.

"Grade the calves into prime, choice, and good as in the past. Then show by breeds as in the past, but bring out the prime and the choice calves; place the top prime calves in one group and the top choice in another group. Give as much prize money to the calves placing in the choice group as to those in the prime group. Allow the first place calf in each group to show for grand championship. Sale order according to placings, that is -- sell all first place prime and choice calves then all second place prime and choice, and so on."

We realize that it is almost impossible to devise a perfect plan that will place the right amount of stress on the choice grade in relation to other grades represented in the show and that there are several things in this proposed plan that may appear out-of-balance to those of us so long accustomed to the show classification that encourages almost 100 percent the placing-up of prime animals. However, the fine success which we have had in our junior market hog shows in teaching the young exhibitors the finish and kind of meat hog the market demands and will pay most for, lead us to believe that fat cattle show classes can be organized so as to better encourage our boys in production and marketing of the weight, grade and quality of beef that will more nearly meet consumer preference and at the same time that will most likely make the most profit.

With the support received by the replies from the packers and meat merchandisers as well as the interest manifested by county agents and vo-ag teachers, the Planning Committees for the 1957 spring junior fat cattle shows at Knoxville and Chattanooga have adopted the show classification described above for each of these shows. It has been said that the one thing in life of which we are certain is change, and we anticipate as time moves on additional changes and refinements to meet the prevailing conditions.

CONSUMER MEAT BUYING PREFERENCES ^{1/}

The discussion here this morning on "Show Ring Animals" compared to "What the Markets Want" is rather an interesting one. We have had some experience with "Show Ring" animals purchased for use in our retail markets.

In formulating this part of your program, Mr. Robinson has asked me to take about 4 minutes to present to you a brief outline of consumer meat buying preferences. At this precise moment I am particularly happy about two events: (1) that I had submitted a brief outline of consumer preferences as we see them in our stores to both Mr. Lacy and Mr. Robinson; (2) that I had had the opportunity to listen to Mr. Seth Shaw of Safeway Stores on Wednesday. To those of you who heard Mr. Shaw, you will notice that while we may express ourselves differently, we do prefer about the same size and quality carcasses, and follow about the same pattern in meat merchandising; that is to bring as many people into our stores as possible.

All of us here today are consumers or customers, whichever you prefer to use. I am sure that we all shop in pretty much the same pattern as the people who visit our stores, that is to buy as close to what we want at a price we feel is a fair market value or what we are willing to pay.

We, the retailer, are the last link between the producer and consumer and I am happy to try to pass along some of the problems we have as retailers also to express some of the opinions as to what our customers expect from us.

High protein diets and modern shopping methods have made the housewife more cautious about buying excess fat and wasty meat cuts. Needless to say, she still expects to buy meat that has flavor and is tender.

In our markets we find we can best satisfy our customers by following these specifications: Beef represents about 50% of our meat tonnage, so let's take that first -- We like carcasses of beef dressing in the 500 to 600 pound class and holding as near to 550 pounds as possible. In grade, we like these animals to grade from Top Good to Low or Medium Choice. Our reason for this selection is that we feel we give our customers the kind of beef they want in flavor and tenderness without buying too much waste or our having to trim off excessive amounts of fat to sell to the rendering company for 3 or 4 cents per pound. Following proven cutting methods, proper carcass selection will give us a 78% yield of retail cuts. We have seen High Grades and excessively fat or wasty carcasses yield less than 70% in retail cuts. To produce this type of carcass that we prefer, it would take a reasonably well finished live steer weighing approximately 950 pounds.

^{1/} Presented by Frank E. Buehler, P & C Meat Buyer, Syracuse, New York, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

For some time now we have felt that there was room in some markets to merchandise a second line of beef using a lower grade running from Commercial to Low Good. The problem we have encountered here is that of policing it. Today it has been a problem to keep the two grades separated so that customers don't buy the low grade believing that they are buying our top grade of beef.

On carcass lamb, we like to use 38 to 45 pound carcasses grading about the same as the beef -- and the reason for its use being the same.

We don't buy any hog carcasses, but use 10 to 14 pound Pork Loins, 12 to 14 pound hams, etc. There isn't any question but that the low prices of hogs brought about the decision by packers last fall to put the new look on Pork Cuts. It was this decision that was largely responsible for moving the heavy hog runs during the past winter.

It may seem that we are rather selective and limited in our choice of carcass animals, however, we feel these specifications do give the housewife more meat for her meat dollar of the quality, flavor and tenderness she wants at prices per pound she expects to pay.

P&C meat sales show a steady increase and this is the best barometer we have in customer satisfaction.

DEGREE OF FINISH ^{1/}

If we accept the fact that steers and lambs grading prime represent the highest in meat quality and value - then our show ring standards correlate quite well with market standards. It should be well understood, however, that commercial feeders must consider all production factors relative to the efficient and profitable use of feeds and that market topping prime steers or lambs may often not be the most profitable for them to produce. In New York, as in most farm States, there are some prime steers produced. However, most of our steer and lamb producers do and should make considerable use of economical pasture and other roughages. For them, the high good and choice grades represent the practical top.

There is much conversation that prime steers and lambs produce meat with entirely too much fat to suit consumer demands. This is certainly true for most consumers and when all buyers of beef and lamb discount the excess finish now needed to make the prime grade, then the producers will be most happy to feed to a more moderate degree of finish. However, so long as prime represents the market topping grade, even if only a minority of buyers are involved, our show ring standards must be based on this top grade.

Actually, the number of prime cattle and lambs produced commercially plus the show stock represent a small percentage of our meat supply. Of greater concern should be the much higher percentage of meat animals arriving at the markets with too little finish for most profit to the producer and real satisfaction to the ultimate consumer.

The matter of overfinished steers and lambs is not a serious problem at the summer and early fall shows. In fact, it is often difficult to find at these shows enough prime steers with the desired conformation and quality. The biggest problem of overfinish is apparent at the shows held from November through the winter. This could be handled best by changing the show classification. In other words, dropping out the Junior yearling class in the case of fat steers. So long as we have steer and lamb shows as now held, most will favor a program that for success will require both a good animal and skillful feeding for rapid fattening.

Production projects coupled with a show of live animals and/or carcasses are fine and worthy of more emphasis. However, limited-feeding projects have yet to prove popular in "show" competitions. At best, such projects call for considerable record keeping and supervision, and their success will largely depend upon the time and effort that you men can give to them.

1/ Presented by J. I. Miller, Professor of Animal Husbandry, Cornell University, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

CHANGING OFFICIAL GRADE STANDARDS 1/

Your chairman has asked me to comment particularly on changes in grade standards with respect both to changes in grade names and changes in the standards themselves. While the Department is continually striving to improve the grade standards, we recognize the confusion that always accompanies a change and the great deal of educational work required to get everyone familiar with it. Therefore, we certainly do not advocate that standards be changed just for the sake of change. However, the Department does recognize that the livestock and meat industries are dynamic, rather than static, in nature and that if the grade standards are to be of their utmost value to these industries they must always be subject to change. In fact, we are continually reviewing the standards ourselves in an effort to make them more useful and easier to interpret and we frequently confer with industry groups that have suggestions to offer in connection with changes in grade standards. Suggestions from industry for changes in grade standards are always welcomed.

In order that the whole question of changes in grade standards can be put in its proper perspective, I would like to discuss briefly the general situations under which the Department feels that changes in standards can be justified. These can be grouped under about four different headings and I shall try to give an illustration of a change that has been made in the standards in each of these general categories as I discuss them.

The first general situation that would justify a change in the standards that I would like to mention is when there have been demonstrated changes in livestock production practices or in consumer preferences for meats. This is a rather difficult change to illustrate because there has been no change in the standards that was made specifically for this reason. However, the tendency to produce younger, lighter weight cattle and the increase in demand for smaller cuts of beef with less fat was partly responsible for the changes in the beef standards in 1950 which combined the former Prime and Choice grades into the present Prime grade, renamed the Good grade as Choice and took a segment of the younger beef from the upper part of the former Commercial grade and called it Good. You will note that I used the word "demonstrated" in connection with the justification of this type of change. I used that word on purpose because, by and large, standards are not changed under any circumstances without rather conclusive proof that the change is sound and that it will be beneficial to the industry.

A second justification for changing the standards is to modify the limits of one or more grades when it has been demonstrated but these are too wide or too narrow to be of greatest usefulness. The very recent change in beef and slaughter cattle grade standards which created a new grade by dividing the Commercial grade strictly on a

1/ Presented by C. E. Murphey, Marketing Specialist, Livestock Division, Agricultural Marketing Service, U. S. Department of Agriculture, Washington 25, D. C., at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

maturity basis is a very good illustration of this type of change. One of the criteria that is used to determine whether or not a grade is too wide is whether or not all of the units of that grade are considered to be generally interchangeable one with the other. In this connection, it had been found that the variation in characteristics of beef within the former Commercial grade, which was the result of having the full range of maturity included in this one grade, were entirely too wide to have the meat be sold on anything like an interchangeable basis. To reduce that variability in the former Commercial grade it was split on a maturity basis. The new Standard grade will include the younger animals and beef formerly graded Commercial and the older animals and beef will continue to be graded Commercial. In terms of live animals, it is our feeling that this cut off between Standard and Commercial will be at about four years of age.

A third reason that justifies a change in standards is to incorporate the results of research findings relative to factors that affect the desirability of the product being graded. Research on factors that affect the palatability of beef have established the fact that color of fat does not contribute to its estimation of palatability so references to color of fat were removed from these standards in 1949.

A fourth reason for change in the standards is to make changes in wording or to make other changes which would clarify their intended interpretation and application. This kind of change does not involve any change of grade lines but is a most important change from the standpoint of the operation of a grading service. A number of changes of this nature were made in the beef and lamb grade standards when they were revised about five years ago and these have been most helpful to us in maintaining a more nearly uniform interpretation of the standards by official meat graders.

Now, I would like to indicate something about the mechanics of getting changes made. Recommendations for changes in the standards can originate with either the Department or with industry. However, regardless of where the change originates, the decision as to whether it is accepted or rejected is made only after it is subjected to very democratic processes of consideration by being published in the Federal Register and permitting a stipulated period for interested parties to file their comments on it. If the proposal originates from the industry, the Department usually concurs that the proposed changes would be beneficial to the industry before it will agree to publish the proposal in the Federal Register. After all comments are received on a proposal they are analyzed and a final decision made with respect to its adoption.

The selection of the names that are used to identify each of the various grades has been one of the most difficult problems that have been encountered in connection with the development of grade standards. Except for the obvious necessity for listing the grades in some order when they are published, and except for the use of grade names that indicate some different degree of desirability among the various grades, the Department does not, in any way, advocate that any grade is better than another. Rather, we have always taken the position that each grade is best for

some specific purpose--even Canner grade is best for making frankfurters. It might be argued that grade names for meat should be chosen that are as descriptive of the general level of palatability of the meat as possible but such names as Medium and Common, while rather descriptive of a general level of quality, have not been looked upon with favor by industry because they are considered to be derogatory. The use of the terms Commercial and Utility has been much more acceptable to industry because they are less descriptive of the general level of quality they represent without being particularly derogatory and they have been acceptable to the Department because they do not carry any particular connotation of greater desirability than Prime, Choice or Good. It has also always been the belief of the Department that Federal standards should be considered only as a tool with which to divide the entire range of variability in a product into segments so that these could be used as reliable guides for persons to use for trading purposes.

Changes in standards are not easy to make, particularly if the proposed change is the least bit controversial. Many of you here are probably somewhat familiar with the difficulties encountered in recent years by the Department in trying to get grade names for slaughter hogs that were satisfactory to the industry. Similar difficulty was experienced with the change that was made in the beef grade standards in 1950. With the greatly expanded use that has been made of the official grade standards in the last few years--particularly the beef grade standards--it would appear to be most difficult to get agreement on any change involving the limits or grade names for any of the "so-called" higher grades such as Prime, Choice, or Good. As evidenced by the fact that about 50 percent of the total beef production is currently being federally graded, the Federal standards are apparently making a very valuable contribution to the marketing of beef and the Department and the trade would undoubtedly be most hesitant to propose any change that might modify advantages that currently accrue to producers, consumers and other members of the trade by reason of this widespread use of the grade standards.

A VIEWPOINT ON NEW YORK 4-H BEEF STEERS 1/

Twenty years ago, we could have said that we very seldom saw a 4-H steer which was too fat. Today, the situation is not much different. In fact, for every steer that is excessive in finish there are two or three which probably do not grade high enough. The majority of our 4-H steers grade choice. It is this grade that most of the buyers seem to prefer. Excessive finish is not the only problem in meeting market preferences. Probably about the same percent of our 4-H steers yield undesirable carcasses for other reasons. Some of these other causes are poor conformation, thin natural fleshing, and weights too high or too light.

One of our problems in the 4-H beef feeding project has been to get the majority of the calves fat enough to sell in 270 to 300 days. To encourage more members to full-feed their cattle, finish has been given considerable emphasis. This emphasis on degree of finish (high choice to low prime) has helped to set a standard toward which all boys and girls should strive.

To get the viewpoint of some of the buyers at our auctions, I asked several of them for their opinion, regarding the topic of this panel discussion. Here are some comments or impressions gained from their letters.

1. "While 4-H sales have always been satisfactory in the proper handling of livestock, some carcasses have been unsatisfactory from the standpoint of marketing values. The chief complaints have been excessive or light weights, too fat or poor conformation."
2. "Replying to your recent inquiry, I would say that by and large, there is now a favorable relationship between consumer preferences and showing standards. Let's continue to encourage our 4-H members to produce thick, meaty animals of 850 to 900 pounds weight which will grade choice, and not so fat that they will be unduly wasty."
3. Another buyer commented, "In our opinion there is little or no difference in the amount of fat on beef cuts which people in different income groups buy. Many cattle which we have bought have not lived up internally to what they showed externally. This is not to imply that the cattle which we have bought at 4-H shows have been generally of this class. From our experience, we would conclude that the relationship between buyer and consumer preferences could be greatly enhanced by getting a more desirable relationship between internal finish (marbling) and outside covering."

1/ Presented by H. A. Willman, 4-H Club Specialist, Cornell University, at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

4. "It would be highly ridiculous for us to find much fault with any of the sale cattle which we have purchased but some carcasses have shown a marked excess of outer finish to inner marbling. The last 4-H grand champion we bought was truly as fine in the carcass as in the showring. He had inner marbling as well as outer covering but not to an excess. It seems as though cattle which have been brought slowly to a prime or top-choice finish have a superior relationship of inner quality to outer waste."

Two of the buyers of our 4-H steers seem to believe that excessive outer finish without specks of fat in the lean may be resulting from short feeding periods, and the hurried and forced feeding of young cattle.

Such expressions from buyers indicate that some research work needs to be conducted to study the relationship of outer covering to marbling and the extent to which it is influenced by such environmental factors as length of feeding period and the age of animals, and also their breeding or inheritance. We may need to trace some carcasses back to their feed lots and herds to get more information on quality differences within grades. Some cattle do not live up internally to what they showed externally.

LIVESTOCK INSECT CONTROL AND THE MILLER BILL 1/

Since about 1946 DDT and other chlorinated hydrocarbon insecticides have been widely used to control flies, lice, fleas, mites, and ticks on livestock. These insecticides have provided better control of these pests than the older materials or methods. During the past two years, there has been considerable concern over legislation relating to the use of insecticides on raw agricultural products.

The Miller Bill or Public Law 518 is an amendment to the Federal Food, Drug, and Cosmetics Act passed by Congress in 1954. This bill empowers the Department of Health, Education, and Welfare to establish tolerances or exemptions from the requirement of tolerances in or on raw agricultural commodities destined for shipment in interstate commerce. The original law enacted in 1938 provided for tolerances for food additives that are necessary or unavoidable. The U. S. Department of Agriculture has responsibilities under the law including the certification of usefulness of each pesticide chemical for which a tolerance or exemption is sought and an opinion as to the amount of residue likely to result on specified commodities. The Miller amendment was designed to provide a more convenient procedure for establishing tolerances.

For a number of years before passage of the Miller amendment, the Entomology Research Branch (and former Bureau of Entomology and Plant Quarantine) worked toward the prevention of minimizing of pesticide residues in plant and animal products. A considerable amount of information on residues was obtained, and the Pesticide Regulation Section of the Department as well as officials of the Food and Drug Administration were consulted relative to proposed recommendations on insecticide usage. This research data plus much data obtained by industry and State experiment stations provided reasonable assurance that the use of a number of insecticides for controlling livestock insects would not create health hazards.

The more stringent requirements of the new law have made it necessary, however, to carefully review all recommendations and where necessary obtain more residue data. It is the policy of the Department and the Branch to retain earlier recommendations for control of plant and animal insect pests until such a time as tolerances are established. When tolerances are announced, available data will be studied to determine if tolerances can be met. If additional data are needed, every effort will be made to obtain such data. The Food and Drug Administration has indicated that registered insecticides will be regarded as satisfactory for the present season so long as they are used in accordance with recommendations on the label.

1/ Presented by A. W. Lindquist, Entomology Research Branch, Agricultural Research Service, U. S. Department of Agriculture, Washington 25, D. C., at the Interregional Livestock Production and Marketing Conference, June 13 to 16, 1956, Ithaca, New York.

Much work has been done by Federal, State, and industrial workers to establish the amount of several insecticides stored in various tissues of livestock, including milk. In our Department, entomologists, veterinarians, and chemists working as a team at our Beltsville and Kerrville laboratories have developed standard techniques in applying sprays on crops and livestock, taking samples, and determining residues by chemical analysis. The veterinarians, for example, have perfected surgical methods for removing samples of fat from the omentum at regular intervals during and after treatment. The chemists have improved methods of analysis of various tissues for most of the insecticides. Most of this information has been published.

In addition to residue studies, the cooperating veterinarians have determined the amounts of insecticides that can be applied to livestock without endangering the health of the animals. They have studied symptoms of poisoning in livestock caused by various insecticides.

In general, it has been found that such chemicals as DDT, aldrin, dieldrin, and endrin cause high levels of contamination of fat when applied to beef cattle or when consumed on forage, and the residues tend to persist for months after exposure to the chemical has ceased. These materials also appear in milk when applied at relatively low levels to dairy cows. Chlordane, heptachlor, toxaphene, Strobane, and lindane do not build up to such high levels in fat or milk, and the residues disappear more rapidly. Methoxychlor shows little tendency to store in animal fat.

Less is known about the organic phosphorus insecticides. Chemical analysis of milk from cows sprayed with 0.5 percent malathion showed that small amounts (0.17 p.p.m.) appeared 5 hours after treatment but disappeared in 24 hours. Diazinon is largely eliminated within 2 days. It seems that the phosphorus insecticides may not give the residue problems that have been obstacles to the utilization of the chlorinated hydrocarbons.

It is urged that recommendations for using insecticides as made by the State experiment stations, the U. S. Department of Agriculture, and industrial concerns marketing registered products be followed by growers. The labels on insecticide containers should be carefully studied and the materials applied in accordance with the directions.

REPORT OF THE RESOLUTIONS COMMITTEE

OF

INTERREGIONAL LIVESTOCK PRODUCTION AND MARKETING CONFERENCE

June 13-16, 1956

The Interregional Livestock Production and Marketing Conference has always been the most valuable conference attended by production and marketing extension workers. We feel that with the adjustments facing livestock producers and marketing organizations, and new technological developments, it is necessary for the extension workers in the two regions to exchange information annually. Since many extension workers have limited opportunities for professional improvement, this conference has been a welcomed and needed means of keeping abreast of new programs and new research. Such conferences lead to bringing about desirable adjustments in extension programs.

The participants in the conference held at Cornell request that the State extension directors of the two regions give consideration to the holding of the next conference in 1957 in the Southern region at Mississippi State College, to be followed by a meeting in the Northeast in 1958.

We would like particularly to call to the directors' attention the section of the 1956 program dealing with consumer preferences and new market developments discussed by representatives of marketing organizations. Since research both in the experiment stations and by marketing organizations in this field is relatively new and changing rapidly, it is of the utmost importance that extension workers have the opportunity of adjusting their sights in order to keep extension programs in line with consumer demand. Only through a process of annual evaluation can extension workers project their programs with livestock producers in order to prevent costly mistakes on the part of the producers of the nation's supply of meat.

We would like to express our sincere appreciation to the personnel of the New York State College of Agriculture for the wonderful hospitality and the excellent job performed in planning and organizing this program and for providing such convenient and comfortable facilities that added greatly to the conference. We want in particular to express our thanks to Director M. C. Bond and members of the Cornell extension staff for their untiring efforts.

We would like to have the Cornell extension staff express our thanks to the many cooperating individuals and groups who helped make this conference so successful, particularly the Eastern Railroads, Empire Livestock Marketing Cooperative, New York State Beef Associations, New York State Department of Agriculture and Markets, and the Russell Harrington Cutlery Company.

Our wives would particularly like to thank the wives of the Cornell staff for arranging an interesting program for them.

We would also like to extend our appreciation to the directors of the two regions as well as the Federal Extension office for making this conference possible.

We are particularly gratified for the participation of such a wide variety of marketing agencies as well as representatives of the U. S. Department of Agriculture, State Departments of Agriculture and Markets, and college workers.

Amos R. Meyer, Maryland, Chairman
Wendell G. Earle, New York
D. C. Gaylord, Connecticut
Jack Kelley, North Carolina
Paul F. Newell, Mississippi

LIST OF PERSONS IN ATTENDANCE

CONNECTICUT

Francis Crandall, Instructor in Animal Husbandry,
University of Connecticut, Storrs, Conn.
D. C. Gaylord, Extension Animal Husbandman, University
of Connecticut, Storrs, Conn.
Nathan S. Hale, Associate Professor of Animal Industries,
University of Connecticut, Storrs, Conn.

DISTRICT OF
COLUMBIA

Charles E. Bell, Jr., Chief, Animal Industry Branch,
Federal Extension Service, USDA, Washington 25, D. C.
Harold F. Breimyer, Head, Livestock, Fats & Oils Sec-
tion, Agricultural Economics Division, Agricultural
Marketing Service, USDA, Washington 25, D. C.
R. L. Fox, Agricultural Economist, Farmer Cooperative
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A. W. Lindquist, Head, Insects Affecting Man & Animals
Section, Entomology Research Branch, Agricultural
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C. E. Murphey, Marketing Specialist, Livestock Division,
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Homer S. Porteus, Chief, Livestock, Dairy and Poultry
Marketing Branch, Federal Extension Service, USDA,
Washington 25, D. C.
Seth T. Shaw, Vice President, Safeway Stores, Inc.,
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Gale Ueland, Extension Economist, Federal Extension
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ILLINOIS

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INDIANA

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IOWA

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MAINE

John C. Goater, Extension Livestock Specialist,
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NEW HAMPSHIRE

Loring V. Tirrell, Professor of Animal Husbandry,
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NEW YORK

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Maurice C. Bond, Director of Extension of the New
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Frank E. Buehler, P & C Meat Buyer, Syracuse, N. Y.
Herrell DeGraff, Professor of Food Economics, Cornell
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Wendell G. Earle, Extension Economist in Marketing,
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Eugene P. Forrestel, President, Empire Livestock
Marketing Cooperative, Producers Livestock Market-
ing Association, Medina, N. Y.
Raymond V. Hemming, General Manager, Empire Livestock
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M. D. Lacy, Professor of Animal Husbandry, Cornell
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Ralph Poole, Director, New York Beef Cattlemen's
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Robert E. Rector, Supervisor of Markets, Empire Live-
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D. F. Rehl, District Agricultural Sales Manager,
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James H. Warner, Beef Cattle Extension Specialist,
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Charles W. Porter, Consumer Education Specialist,
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TENNESSEE

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